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TITLE: Clinical Utility and Pitfalls of Ultrasound Guided Foreign Body Removal in War Fighters

PRINCIPAL INVESTIGATOR: William E. Shiels II, D.O.

CONTRACTING ORGANIZATION: Nationwide Children's Hospital  
Columbus, Ohio 43205

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Fort Detrick, Maryland 21702-5012

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<b>13. SUPPLEMENTARY NOTES</b>					
<b>14. ABSTRACT</b> Part 1 of the 3 part study was conducted on 13 May 2009 at Nationwide Children's Hospital. This was a cadaver cohort study with video comparison between radiologists with percutaneous USFBR, conventional surgical foreign body removal, and surgical foreign body removal with wire localization comparing incision size, time of procedure, wound closure (number of sutures), overall removal success and procedural differences. In this component, comparison data was collected using human cadaver thighs for testing differences between the surgical and percutaneous techniques. Part 1 was completed with success in year 1 using the tasks described in the approved SOW. The hypothesis for part 1 was proven partially correct. The hypothesis was that ultrasound guided foreign body removal (USFBR) is faster and more effective than open surgical removal, with smaller incisions. The results found that USFBR is more effective than open surgical removal, with smaller incisions. However, the results also showed that the surgical method was faster. No progress was made in year 2 or year 3. A no cost extension (NCE) for future years 4 and 5 was approved. No progress was made in year 4 so we will pursue IRB and ORP HRPO approvals in year 5 quarter 1. We will also purchase the remaining supplies and equipment as stated in the budget justification. We anticipate scheduling part 2: training and part 3: clinical implementation in year 5.					
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**Introduction:**

This is a three part study: Part 1 is a cadaver cohort study with video comparison between radiologists with percutaneous ultrasound guided foreign body removal (USFBR), conventional surgical foreign body removal, and wire localization followed by surgical foreign body removal, comparing incision size, time of procedure, wound closure (number of sutures), overall removal success and procedural differences. Part 2 is an educational efficacy research project. The physicians are trained with a turkey breast simulator. They will be evaluated and measured on their performance and competency development with USFBR. Part 3 is a clinical implementation of USFBR in military health care setting as part of patient care of wounded war fighters with symptomatic soft tissue foreign bodies retained after blast injuries.

**Body:**

As previously reported in the first annual report, Part 1 of the 3 part study was conducted on 13 May 2009 at Nationwide Children's Hospital (NCH). All of part 1 was completed in year 1. This was a cadaver cohort study with video comparison between radiologists with percutaneous USFBR, conventional surgical foreign body removal, and surgical foreign body removal with wire localization comparing incision size, time of procedure, wound closure (number of sutures), overall removal success and procedural differences. In this component, comparison data was collected using human cadaver thighs for testing differences between the surgical and percutaneous techniques. Procedures were videotaped for a detailed analysis and accurate documentation of major and minor procedural differences. Statistical analysis projected 9 removals per procedures type would provide complete data sets for demonstration of statistical significance. Local IRB at NCH and secondary IRB approval through DOD ORP HRPO were obtained. Part 1 was completed with success in year 1 using the tasks described in the approved SOW.

The PI, William E. Shiels II, DO (Radiologist) implanted a total of 27 foreign bodies into human cadaver tissue. The anatomical materials used were human cadaver thighs. To remain consistent, all foreign bodies were the same. A 1 cm piece of a wooden toothpick was used to represent a traditional foreign body implanted in the cadaver tissue. Each cadaver thigh had 3 foreign bodies positioned into the tissue by Dr. Shiels. The study coordinator, Beth M. Haeuptle, MA timed, observed and documented the foreign body removals. Brad Hoehne (Graphic Animation Artist) had 2 digital video cameras on tripods documenting the procedures. He also hand held a high powered video camera which allowed for close up video to substantiate the findings. This same footage was used to develop future training materials in part 2 of the 3 part study. Dr. Shiels monitored the research efforts. Brian D. Kenney MD (surgeon) and James W. Murakami, MD (Radiologist) performing the foreign body removals; both physicians self-reported the start and end time, the incision size, number of sutures as well as the success or failure of the foreign body removal. This was done in conjunction with the written and video documentation for accuracy of findings.

Using a traditional surgical method following the skin marking of the foreign body location, Brian D. Kenney, MD completed 9 foreign body removals (3 in each thigh). The incision size for each removal ranged from 30mm – 58mm with a mean of 45.78 mm. The number of sutures ranged from 4 to 9 in order to effectively close the wound. The time to complete the procedure (skin to skin time) ranged from 4-15 minutes with a mean of 8.33 min.; 7 of the 9 removal attempts were successful. One foreign body was unable to be located by the surgeon. In a live situation the surgeon would send the 5 patient to Radiology for wire localization and then the surgeon would re-operate with the wire localization method or percutaneous ultrasound guided foreign body removal would be completed by a radiologist.

Dr. William E. Shiels II, DO used ultrasound guidance for placement of localization wires at the site of each of 9 foreign bodies (3 in each thigh). Brian D. Kenney, MD then used an operative method following the wire localization to remove the foreign bodies. The incision size for each removal ranged from 24mm – 39mm with a mean of 32.1 mm. The number of sutures ranged from 3 to 6 in order to effectively close the wound. The time to complete the procedure (skin to skin time) ranged from 4-12 minutes with a mean of 7.1 min.; 8 of the 9 removals were successful. One foreign body was unable to be located by the surgeon.

The third removal type was percutaneous interventional radiological ultrasound guided foreign body removal. The technique was performed by James W. Murakami, MD. He completed 9 foreign body removals (3 in each thigh). The incision size for each removal ranged from 5mm – 9mm with a mean of 6.4 mm. Sutures are not needed for this removal technique due to the minimal incision size. A Band-Aid placed over the wound is standard of care. The time to complete the procedure (skin to skin time) ranged from 3-26 minutes with a mean of 12.2 min.; all 9 percutaneous removals were successful.

There are no previously reported findings to compare to our data.

No publications or presentations have been submitted, to date, for this research.

Unforeseen technical issues with cadaver materials occurred with both the surgical and the radiological procedures. The surgeon, Brian D. Kenney, MD commented that operative removal was a much easier in a cadaver compared to a live human because operative sites were not complicated by bleeding. During a procedure with a live patient the surgeon would need to stop every few minutes to manage bleeding which would lengthen the procedure time. During his first removal he commented that “this is necessitating significant tissue destruction to find the foreign body”. Additionally, the surgeon felt that blunt dissection facilitated movement of the foreign bodies in the surgical field; the surgeon switched from a blunt dissection to a sharp dissection to alleviate the movement issue. Both the surgeon and the radiologist reported the remarkable amount of movement with the foreign body removal. The surgeon noted that the 3 foreign bodies implanted in the third thigh with the traditional surgical removal were placed in the subcutaneous fat and not the muscle which made locating the foreign body easier. The wooden toothpicks were colored which the surgeon commented helped when searching for the foreign bodies. This is an advantage to the surgical method in the cadaver because the radiological method does not use an open operative field in which to see the color of the toothpick to help with localization. Dr. Kenney also verbalized the learning process of following the fascial penetration site for his operative approach; he said that once he adapted to that technique

then the process was simplified. Live human tissue with a foreign body and the time it takes to seek treatment would not leave such an easy hole to follow in order to locate the foreign body. This is seen as an advantage to the operative procedure in a cadaver. With respect to wire localization procedure, Dr. Kenney noted that wire localization made the removal process much easier. The key to success with this method was having an experienced interventional radiologist provide proper placement of the localization wire. If someone other than an experienced radiologist placed the wire, the failure rate would most likely increase. The radiologist in this study, Dr. Murakami, has performed over 100 foreign body removal procedures on living patients and expressed that it is very difficult working with cadaveric material. The mechanical (elastic) properties of the cadaver tissue effect the percutaneous ultrasound guided foreign body removal, seeming to add a degree of difficulty to cadaveric removal not experienced in live humans.

The findings demonstrated that percutaneous ultrasound guided foreign body removal technique has much less tissue destruction as compared with operative techniques; the incision size is also much smaller with this technique. This would result in a faster healing time if the foreign body removal was performed in a live patient. Sutures are not needed in the radiological method. The success rate was 100% for the percutaneous ultrasound guided foreign body removal technique. Whereas the removal success rate for the traditional surgical method was 78% successful and the surgical with wire localization was 89% successful.

Part 2 of the 3 part study is the competency training, testing, and documentation of military physicians in USFBR techniques. The approved SOW documented that this would take place in years 1-3. The unanticipated retirement of the part 2 PI, slowed down the submission process to the local IRB at USUHS. We worked in year 1 to change the PI but he later declined. The SOW and budget justification was revised and approved by TATRC on 03Oct2011. The revisions included the change of PI for part 2, participating MTFs, as well as the location change from USUHS to NCH. The revised SOW was submitted to TATRC and approved for a no cost extension for years 4 and 5. A second revised SOW and budget justification were submitted to TATRC on 17Sept2012 with changes in equipment supplies and new co-investigators at the participating MTFs. There were no changes in the study design. The second revisions are waiting for approval from the Grants Specialist Maribel Fratina. The protocol will be submitted to TAMC for local IRB approval as well as local IRB approval at NCH. We are working with TAMC IRB staff (Victoria Garshnek) to have the participating MTFs enter into an IAIR in order to have them defer IRB approval to TAMC and avoid having each MTF's IRB review the same protocol. There will be a final approval through the ORP HRPO.

This phase of the research will have formalized and standardized procedural training, with development of clinical guidelines for physicians. The training and testing component was originally subcontracted to HMJF and was originally to be conducted at The Uniformed Services University of The Health Sciences (USUHS). The revised SOW approved by TATRC on 03Oct2011 now describes the training to be conducted at each MTF, NCH as well as at the AMEDD conference. Dr. Shiels, Dr. Murakami, Dr. Rooks or Associate Resident PI will be performing training and testing (and collecting data). COL Rooks will serve as the PI at TAMC and assist in the recruitment of Army physicians. All training will now be completed in year 5 of the project.

Competency testing and training will involve one day of didactic and hand-on training, with pre-test and post-test components. Didactic training materials will incorporate written, slide presentation, animation, and hands-on tissue model mentored training components. Physicians will undergo pre-testing with documentation of procedural omissions and errors, followed by standardized and formalized didactic and mentored hands-on training. Testing will include video review of a representative USFBR procedure followed by live procedural pre-testing of each physician for removal success, time to removal, demonstration of technical component proficiency, and successful recognition/management of technical pitfalls. Post-training assessment will document competency in a tissue model and document incorporation of standardized procedural steps in USFBR procedures with proper procedural steps and recognition/management of procedural pitfalls. Each physician will be required to successfully remove 5 wooden and 5 metallic foreign bodies to demonstrate procedural proficiency.

Part 2: Competency testing, training, and documentation of physicians in USFBR techniques. Nationwide Children's Hospital is the primary site and other participating institutions/MTFs include TAMC, BAMC, WRNMMC, and MAMC. Training may also be performed at an AMEDD course by PI, CO-PI or Associate PI. The budget allows for training to be performed quarterly or at a minimum 2 times a year in order to meet the milestones. A minimum of 4 and a maximum of six physicians will be trained each session.

I. Standardized percutaneous USFBR training

1. Training 1

a. Pretest doctors

- i. Video demonstration of USFBR procedure
- ii. Hands-on pre-training test (15 minutes)
- iii. Written analysis of video documentation detailing the foreign body removal technique
  1. Time to removal
  2. Success/failure of removal attempt after 15 minutes
  3. Proper/errant alignment of insonation and instruments
  4. Proper/errant hand position and transducer position
  5. Proper/errant use of forceps in field of operation
  6. Proper/errant stepwise foreign body definition
  7. Proper/errant forceps grasp of foreign body
  8. Recognition/lack thereof-volume averaging artifact
  9. Recognition/lack thereof-oblique crosscut artifact

- b. Phase one of standardized competency training of percutaneous ultrasound guided soft tissue foreign body removal
  - i. Didactic classroom training (Powerpoint discussion with animations)
    - 1. Essentials of sonography-rationale and scientific basis
      - a. Contact scanning
    - 2. Sonographic foreign body characterization
      - a. Wood, metal, glass, plastic, stone/ceramic
    - 3. Standardized stepwise instruction in USFBR
      - a. Includes options for forceps position-vertical vs. horizontal
      - b. Forceps open vs. closed
      - c. Foreign body definition prior to removal
      - d. Blunt dissection vs. sharp dissection
      - e. Hydrodissection
    - 4. Options for instrumentation-forceps
    - 5. Clinical management following USFBR
    - 6. Pitfalls
      - a. Volume averaging artifact
      - b. Oblique crosscut artifact
      - c. Transducer angulation
      - d. Central foreign body grasp
      - e. Forceful foreign body grasp
      - f. Tissue grasp vs. clean foreign body grasp
  - ii. Hands on training-Turkey breast (or pork shoulder) tissue model with mentored training
    - 1. Physicians will perform USFBR
      - a. Mentored training with live removal of wood and metallic foreign bodies in tissue models.
      - b. Train to proficiency
- c. Post test
  - i. Each physician removes 5 wood and 5 metallic foreign bodies
  - ii. Video documentation of post-test



- iii. Written analysis of video documentation detailing the foreign body removal technique
- iv. Written analysis of video documentation detailing the foreign body removal technique
  - 1. Time to removal
  - 2. Success/failure of removal attempt after 15 minutes
  - 3. Proper/errant alignment of insonation and instruments
  - 4. Proper/errant hand position and transducer position
  - 5. Proper/errant use of forceps in field of operation
  - 6. Proper/errant stepwise foreign body definition
  - 7. Proper/errant forceps grasp of foreign body
  - 8. Recognition/lack thereof-volume averaging artifact
  - 9. Recognition/lack thereof-oblique crosscut artifact

Part 3 is a clinical implementation study in at least one MTF, documenting USFBR procedural parameters such as time to removal, incision size, type of foreign body, fragmentation during removal, success for failure of removal attempt, blunt vs. sharp dissection, complications, technical pitfalls encountered, time to return to function, time of wound healing, and subjective patient evaluation of the experience. In part 3, clinical comparison will be made with similar parameters, as possible, with patients who have undergone traditional surgical fragment removal (chart review or documentation from patients undergoing both procedures). In this clinical component, the objective will be for symptomatic foreign bodies in soft tissues to be removed with USFBR, with referral always at the discretion of the primary surgeon.

Specific procedural objectives would include USFBR incisions to be no longer than either the width of the removal forceps or the width of the foreign body being removed. Local anesthesia, sedation, or general anesthesia determinations will be made by the radiologist/physician removing the foreign body. Expectations are for soft tissue foreign bodies to be successfully removed intact, with greater than 90% success. Complications are to be recorded, but expected complications should only include simple wound infections as the anticipated complication (less than 10% occurrence). Pain following USFBR should be little to none (less than 2 on a 10 point scale). Post-procedural care should be the same as for routine wound care management from a sutured or non-sutured wound. Sutures should be used if wounds are clean, larger than 5-6 mm in length, and if longer than 6 mm, best closed with suture as opposed to tissue adhesive. Infected wounds should be allowed to heal by secondary intention, without sutures. Implementation of

USFBR care should be completed in at least 5 war fighters by month 12 in order to demonstrate successful implementation in at least one military MTF to meet milestone.

Part 3 data collection will be performed in years 4 & 5. Dr. Shiels and Nationwide Children's Hospital will be responsible for parallel clinical state-of-the-art procedural and care algorithm development using ultra-high resolution sonography, with linear, compact linear, phased array, and convex linear transducers. Dr. Shiels and Nationwide Children's Hospital will provide quarterly, web-based state-of-the-art technology clinical and technical improvement updates. Dr. Shiels will provide annual on-site USFBR hands-on simulator procedural and technology update training at TAMC.

The study for Part 3 has been submitted to TAMC, NCH and ORP HRPO and we are waiting for notification of an approval. COL Veronica J. Rooks, MD, MC will serve as the PI at Tripler Army Medical Center (TAMC). William E. Shiels II, DO will be the Co-PI for part 3. Troy Koch, MD, CPT, MC, USA was not listed in the original SOW but was thought to join the research team at one time so his name was mentioned in the year 1 annual report. He is now not going to be part of the project due to conflict of time. His name has not been added to the study; no changes were submitted to the SOW and will not need to be submitted. Part 3 cannot begin until part 2 is approved and the physicians are trained in USFBR.

### **Key Research Accomplishments**

Part 1 was completed with success in year 1 using the tasks described in the approved SOW.

### **Reportable Outcomes**

No manuscripts, abstracts, presentations or other reportable outcomes have resulted from this research at this time.

### **Conclusion**

The hypothesis for part 1 was proven partially correct. The hypothesis was that ultrasound guided foreign body removal (USFBR) is faster and more effective than open surgical removal, with smaller incisions. The results found that USFBR is more effective than open surgical removal, with smaller incisions. However the results also showed that the surgical method was faster. The results could have been affected by taking into account the differences in live tissue versus the dead tissue used with the cadaver thigh in this study. During future work or another comparison between radiologists with percutaneous USFBR, conventional surgical foreign body removal, and surgical foreign body removal with wire localization some changes would be recommended. Natural colored wooden 11 toothpicks would be a better choice than colored toothpicks that are easy to see in the cadaver tissue. Live tissue would alleviate the movement of the foreign body; but there would be no way to conduct a study on live patients with standardized implanting foreign bodies. A study could be done with live patients with existing foreign bodies but then there would not be any controls. Live patients would also have blood to make the operative portions of the study more life-like; however a researcher would not ever subject a patient to undue trauma from a surgical method if the percutaneous ultrasound guided foreign body removal

technique were available. The findings showed the percutaneous ultrasound guided foreign body removal technique to have much less tissue destruction than operative techniques; the incision size is also much smaller in this technique. This would result in a faster healing time if the foreign body removal was performed in a live patient. Sutures are not needed in the radiological method. The success rate was 100% for the percutaneous ultrasound guided foreign body removal technique; whereas, the success rate for traditional surgical method and surgical with wire localization were only 78% and 89% respectively. The knowledge gained from this research demonstrates that USFBR is a more effective and less traumatic method of removing foreign bodies and should be readily implemented into the military system by training military physicians in part 2 with a clinical implementation in part 3.

## **References**

Shiels WE II, Babcock DS, Wilson JL, Burch RA. Localization and Guided Removal of Soft-tissue Foreign Bodies with Sonography. AJR 1990; 155(6):1277-128.

Shiels II WE: Soft Tissue Foreign Bodies: Sonographic Diagnosis and Therapeutic Management. Ultrasound Clinics. October 2007. Vol. 2, Issue 2, 669-81.

Close JK, Shiels WE II, Foster JA, Powell DA: Percutaneous Ultrasound-guided Intraorbital Foreign Body Removal. Ophthal Plast Reconstr Surg. 2009 Jul-Aug; 25(4):335-7.

## **Appendices**

### **APPENDICES:**

Appendix 1: William E. Shiels II, DO curriculum vitae

Appendix 2: Foreign Body Removal Record Form

Appendix 3: Cadaver Cohort Study Data Spreadsheet

Appendix 4: Cadaver Cohort Comparison Study-Incision size

Appendix 5: Cadaver Cohort Comparison Study-Removal Time

Appendix 6: Cadaver Cohort Study – Wound Closure (Number of Sutures)

Appendix 7: Cadaver Cohort Study - Overall Success

**APPENDIX 1**  
**CURRICULUM VITAE**  
**WILLIAM EUGENE SHIELS II, D. O.**

**OFFICE ADDRESS:**

Chairman  
Department of Radiology  
Children's Hospital  
700 Children's Drive  
Columbus, Ohio 43205  
(614) 722-2363  
FAX (614) 722-2332

**EDUCATION:**

Undergraduate:	Villanova University, Villanova, PA B.S. in Biology Graduation: May 1976
Graduate:	Villanova University, Villanova, PA M.S. in Biology Graduation: July 1979
Medical School:	Philadelphia College of Osteopathic Medicine Philadelphia, PA D.O. Graduation: June 1983
Internship:	Tripler Army Medical Center Tripler AMC, Hawaii Transitional Internship July 1, 1983 - June 30, 1984
Residency:	Tripler Army Medical Center Tripler AMC, Hawaii Diagnostic Radiology July 1, 1984 - June 30, 1988
Fellowship:	Children's Hospital Medical Center Cincinnati, OH Pediatric Radiology July 1, 1988 - June 30, 1990
Military Education:	AMEDD Officer Basic Course - 1980 Combat Casualty Care Course - 1987 Advanced Trauma Life Support (Provider) Course - 1987

## HONORS AND AWARDS:

National Honor Society - 1972

U.S. Army Health Professions Scholarship - 1979

Outstanding Young Men of America - 1986

**"Committee on Economics – Commission on General & Pediatric Radiology":**  
Distinguished Committee Service Award, American College of Radiology

**"A Simple Device for Air Reduction of Intussusception";** Outstanding Presentation Award,  
Ohio State Radiological Society, Cincinnati, OH - April 28-30, 1989

**"Juvenile Colonic Perforation: Experimental Results and Clinical Applications";**  
John Caffey Gold Medal Award, The Society For Pediatric Radiology,  
International Pediatric Radiology '91, Stockholm, Sweden, May 27-31, 1991.

**"Practical Models for Invasive Sonography";** Certificate of Merit, Radiological Society of  
North America, Chicago, IL, December 1-6, 1991

**"A Model for Interventional Breast Ultrasound";** Certificate of Merit, Radiological Society of  
North America, Chicago, IL, December 1-6, 1991

**"Phantom of the Breast: A Model for Invasive Breast Sonography";** Cum Laude Award,  
Scientific Exhibit, Radiological Society of North America, 1992

**"Interventional Breast Ultrasound: Clinical Application";** Cum Laude, Radiological Society  
of North America, Chicago, IL., November 28-December 4, 1992

**"Phantom of the Breast: A Model for Invasive Breast Sonography";** Finalist, International  
Health and Medical Film Festival, 1992

**"Phantom of the Breast: A Model for Invasive Breast Sonography";** First Place Award,  
American Institute of Ultrasound in Medicine, San Francisco, CA, March 26-29, 1995

**"Phantom of the Breast: A Model for Invasive Breast Sonography";** Certificate of  
Recognition American Roentgen Ray Society, Washington, DC, April 30-May 5, 1995

**"Phantom of the Breast: A Model for Invasive Breast Sonography";** FREDDIE Award,  
Best in Category (video exhibit), International Health and Medical Film Festival, 1995

**"Improved High-Resolution CT of the Lung in Infants and Very Young Children by Using a  
"Stop Ventilation Technique":** Bronze Medal Award, The Society for Pediatric Radiology,  
May 7-9, 1998

**"Advances in Pediatric Airway Radiology"** Wiet GJ, Shiels WE, Long FR, Rudman DT; First  
Place recipient of the Charles F. Ferguson Clinical Research Award, American Society of  
Pediatric Otolaryngology Annual Meeting. Orlando, FL, May, 2000

**"Radiology: A Case-based Assessment":** Shiels WE, King MA. Best Team Award, Ohio  
Medical Education Network, 2000-2001 Season

**2001-2002 Outstanding Clinical Science Faculty Award, Year 3 CPC**

**2001-2002 OMEN Outstanding Clinical Presentation Award - "Interventional Radiology Update".**

**Degree of Fellow** – American Osteopathic College of Radiology, September 27, 2002

**"Site-Specific Induction of Lymphatic Malformations in a Rat Model for Imaging";**  
John Caffey Award for Outstanding Basic Science Research Paper, The Society For  
Pediatric Radiology Annual Meeting, Savannah, GA, April 26-May 2, 2004

**Strathmore's Who's Who** – Listed in the 2006-07 Registry

**1<sup>st</sup> place Award – Scientific Presentation "New Interventional Radiology Techniques  
in the Treatment of Cystic Lesions of the Pediatric Head and Neck**  
Midwest Society for Pediatric Radiology Fall Conference, Minneapolis, MN  
15-17 September, 2006

**"Radiologic Management of Acute Chest and Abdominal Emergencies"**  
10<sup>th</sup> Annual John Patrick Caffey Memorial Lecture  
Visiting Professor  
Children's Hospital of Pittsburgh of UPMC  
Pittsburgh, PA  
19 July, 2007

**Best Doctors in America**  
2007-2008, 2009-2010, 2011-2012  
Best Doctors, Inc.  
Polling & Research  
Aiken, SC

**Columbus Monthly**  
November, 2008 Issue  
Best Doctor Recognition  
November, 2009 Issue  
Best Doctor List for Central Ohio

**Rotary Humanitarian Award**  
District 6690  
Athens, OH  
May 15, 2010

**Dr. Floyd J. Trenery Memorial Medal**  
AOCR Annual Convention  
Annual Awards Ceremony  
Palm Beach, FL  
13 April, 2011

**2011 Ohio State University Business Plan Competition**  
Center of Entrepreneurship  
HOIA HEALTH  
3<sup>rd</sup> Place Winner  
9 June, 2011

Military Awards:

Superior Unit Citation  
Army Commendation Medal  
Army Achievement Medal  
National Defense Service Ribbon  
Army Service Ribbon  
Air Assault Badge

MILITARY SERVICE:

U.S. Army Reserve: Inactive Reserve Duty: Medical School Academic Years 1979-83

Active Duty:

Internship and Residency  
Tripler AMC, 1983-1988

Pediatric Radiology Fellowship  
Children's Hospital Medical Center, 1988-90

Chief, Pediatric Radiology Section  
Department of Radiology  
Walter Reed Army Medical Center  
July 1990 to September 1992

U.S. Regular Army:

The Radiology Consultant to  
The U.S. Army Surgeon General  
November 1991 to December 1995

Chief, Pediatric Radiology Section  
Department of Radiology  
Walter Reed Army Medical Center  
July 1990 to January 1996

BOARD CERTIFICATION:

American Board of Radiology	May 26, 1988
American Osteopathic Board of Radiology:	Diagnostic Radiology March 6, 1989
American Osteopathic Board of Radiology:	Diagnostic Radiology April 29, 1997
	Certificate of Added Qualification: Pediatric Radiology

American Board of Radiology	November 3, 1997
	Certificate of Added Qualification: Pediatric Radiology January 26, 2007
	MOC (Maintenance of Certification)

MEDICAL LICENSURE:

Pennsylvania	#OS-005439-L	July 19, 1984
Ohio	#34-004516	May 20, 1988

## SOCIETY MEMBERSHIPS:

American Medical Association  
American Osteopathic Association – Member # 040558  
American College of Physician Executives  
Society of Chairmen of Radiology at Children's Hospitals  
Radiological Society of North America  
The Society for Pediatric Radiology  
American Roentgen Ray Society  
American College of Radiology  
Central Ohio Radiological Society  
Society of Radiologists in Ultrasound  
The American Society of Emergency Radiology  
The Rotary Club of Dublin A. M. Honorary Membership

## ACADEMIC APPOINTMENTS:

Chairman, Department of Radiology  
Children's Hospital, Columbus, OH  
1 July, 1995 to present

Adjunct Professor, Department of Radiology, School of Medicine  
The University of Toledo Medical Center, Toledo, OH  
1 July, 1998 - present

Clinical Professor, Radiology and Category M on the graduate faculty in Biomedical Engineering  
The Ohio State University Medical Center  
Department of Radiology, Columbus, OH  
October 1, 2005 – present

Affiliate Staff, Radiology & Nuclear Medicine I  
The Children's Medical Center, Dayton, OH  
June 19, 2006 - present

Visiting Scientist  
Department of Radiology, Armed Forces Institute of Pathology, Washington, D.C.  
July 1, 1991 to present

Graduate Faculty in Biomedical Engineering  
The Ohio State University Medical Center  
Department of Radiology, Columbus, OH  
March, 2003 - present

Clinical Assistant Professor of Radiology  
Ohio University College of Osteopathic Medicine  
Athens, OH  
November, 2006 – 2009  
Clinical Associate Professor of Radiology  
June, 2010-2013

Adjunct Assistant Professor of Radiology/Radiological Sciences  
Department of Radiology/Radiological Sciences  
Uniformed Services University of the Health Sciences (USUHS)  
F. Edward Hebert School of Medicine  
11 February 2008 – 30 June 2009



Assistant Professor of Radiology/Radiological Sciences (Non-Tenured)  
1 July 2009 – 11 April 2011

Assistant Professor of Radiology  
Department of Radiology, Uniformed Services University of the Health Sciences, Bethesda, MD  
September 1990 July 1996

Chief, Pediatric Radiology Section  
Department of Radiology, Walter Reed Army Medical Center, Washington, DC  
July 1990 to December 1995

Chief of Fellows and Residents  
Department of Radiology, Children's Hospital Medical Center, Cincinnati, OH  
Academic Year 1989-1990

Attending Radiologist  
Children's Hospital Medical Center and the University of Cincinnati College of Medicine,  
Cincinnati, OH  
October 1988 - June 30, 1990

Volunteer Instructor  
Department of Radiology, University of Cincinnati College of Medicine, Cincinnati, OH  
July 1 1988 - June 30 1989

Clinical Instructor  
University of Hawaii, John A. Burns School of Medicine, Honolulu, HA  
October 1983 - June 1984

Graduate Teaching Assistant  
Villanova University, Villanova, PA  
January 1979 - May 1979

Instructor - Biology and Physical Science  
Malvern Preparatory School, Malvern, PA  
August 1976 - June 1978

#### OTHER APPOINTMENTS:

American Board of Radiology Examiner  
Diagnostic and Pediatric Radiology CAQ  
2004-05

International Radiology Liaison and Facilitator  
Iraqi Medical Reconstitution  
Iraqi Medical Specialty Forum  
2003 – present

Consultant  
US Food and Drug Administration (FDA)  
Center for Devices and Radiological Health  
Department of Health & Human Services  
4/7/02 – 4/6/06

Consultant to the Center for Biologics Evaluation and Research  
Food and Drug Administration (FDA)  
Vaccines and Related Biological Products Advisory Committee  
Department of Health & Human Services  
4/22/04 – 4/21/08

Radiologic Scientific Advisor  
Food and Drug Administration  
Vaccine Trials Branch  
Department of Health & Human Services  
April, 2000

Academy of Radiology Research  
Board of Directors  
1 November, 1998 to present

Advisory Council Member  
The Childhood League Center  
An Early Education Center for Children with Special Needs  
1999 to present

Pediatric Radiology Examination Team Member  
American Osteopathic Board of Radiology  
1 July, 1997 to present

American Osteopathic Board of Radiology  
Examination Team Leader  
September 1997 to present

President and Executive Director  
The Children's Radiological Institute, Columbus, OH  
1 July, 1995 to present

American College of Radiology  
Mammography Accreditation Committee  
April 1993 to present

Association of Military Surgeons of the United States  
Alternate Delegate  
American Medical Association, Young Physicians Section  
1 November, 1992 to 1 November, 1995

American College of Radiology  
ACR Councilor  
October 1992-October 1995

The Radiology Consultant to the U.S. Army Surgeon General  
November 1991 to December 1995

U.S. Army Delegate  
American Medical Association, Resident Physician Section  
December 1986 - June 1990

## COMMITTEES AND OFFICES:

Secretary - Medical School Student Council  
Philadelphia College of Osteopathic Medicine  
Academic Year 1980-1981

Vice President - Junior Officer's Council  
Tripler Army Medical Center  
February 1986 - January 1987

Chairperson - Reference Committee  
American Medical Association - RPS  
Annual Meeting - June 1987

Chief Resident  
Department of Radiology, Tripler Army Medical Center  
Academic Year 1987-1988

Credentials Committee  
American Medical Association - RPS  
Annual Meeting  
June 1988-1989

Office of The Surgeon General, Radiology Representative  
Department of Defense Civilian External Peer Review Program  
Medical Advisory Panel  
September 1992 to December 1995

DOD Civilian External Peer Review Program  
Pediatric Emergency Medical Services Panel  
August 1992 to December 1995

Committee Member  
American Osteopathic College of Radiology  
Committee on Evaluation and Educational Standards  
1992 to 2003

Committee Member  
American Osteopathic College of Radiology  
Committee on Governmental Affairs  
1992 to 2004

Office of The Surgeon General, Radiology Representative  
Department of Defense /NASA  
Russian-American Telemedicine Demonstration Project  
March 1993 to June 1993

Department of Defense Representative  
American College of Radiology  
Mammography Accreditation Committee  
April 1993 to January 1996

Committee Chair  
The Society for Pediatric Radiology  
Policy and Action Committee  
May 1993 to September 1996

Board Member  
American Osteopathic College of Radiology  
Board of Directors  
October 1993 to 1998

Department of Defense Representative  
National Mammography Quality Assurance Advisory Committee  
March 1994 to January 1996

Committee Chair  
Department of Defense, Office of Health Affairs  
MHSS Radiology Proponent Committee: Cost Benefit Analysis of Digital Imaging Systems  
September 1994 to December 1995

Committee Member  
American College of Radiology  
Committee on Economics of the Commission on General Radiology and Pediatric Radiology  
November 1994 to present

Managing Director  
RadNet, Inc., Radiology Network  
Board of Directors  
1 October, 1996 – 2000

Committee Member  
The Society for Pediatric Radiology  
Clinical Practice Committee  
November 1996 to May 1998

Editorial Committee Member  
American Osteopathic College of Radiology  
1996-2002  
Vice-Chair – 1997-2001

Committee Member  
American Osteopathic College of Radiology  
Committee on Manpower  
November, 1995 to 2000

Committee Member - Medical Executive Committee  
Quality Improvement Program  
Children's Hospital, Columbus, Ohio  
January, 1997 to December, 1997

Committee Member  
Children's Hospital  
Emtek Physician Order Entry Steering Committee  
April, 1997 – April 1998

Committee Member  
American Osteopathic College of Radiology  
Nominating Committee  
1996 – 2007  
Chairman – 2005-2007

Committee Member  
American Osteopathic College of Radiology  
Evaluation and Educational Standards  
October 1992 – September 2000

Committee Member  
American Osteopathic College of Radiology  
Education & Training of Residency Program Directors  
October 1993 – September 1997

Committee Member  
Children's Hospital  
Utilization Management Committee  
Children's Hospital and Physicians' Healthcare Network (CHPHN)  
June, 1997 – July 1999

Parliamentarian  
American Osteopathic College of Radiology  
1997 to 1998

Committee Member  
Customer Service Council  
Children's Hospital  
Columbus, Ohio  
January, 1998 – January, 1999

Committee Member  
Medical Executive Committee  
Children's Hospital, Columbus, Ohio  
January, 1998 to December, 1999

Committee Member  
American Osteopathic College of Radiology  
Committee on Governmental Affairs  
1992 - 2004

Chairman  
American Osteopathic College of Radiology  
Committee on Strategic Planning  
1997 to 2001  
Committee Member 2001-2004

Committee Member  
Professional Advisory Committee  
Children's Hospital Homecare and Hospital  
Columbus, Ohio  
June, 1998 – June, 1999

Advisory Committee Member  
Children's Hospital Radiology Research Program (CHRRP)  
June, 1998 to present

Committee Member  
Faculty Development Committee  
Children's Hospital  
Columbus, Ohio  
July, 1998 – December, 1999

Committee Member  
Advisory Committee  
Telehealth Advisory Committee  
Children's Hospital  
Columbus, Ohio  
July, 1998 – June, 2000

Co-Chairman  
"Hands-On" How To Course Committee  
RSNA Refresher Course Committee  
28 October, 1998 – October, 2003

Committee Member  
American Osteopathic College of Radiology  
Ad Hoc Committee on Teleradiology  
November, 1998 – November, 2000

Chairman  
American Osteopathic College of Radiology  
Revisions Committee  
December, 1998 – December 2000

Committee Member  
American Osteopathic College of Radiology  
Liaison Committee on Research  
1998 to 1999  
Chairman 1999 - 2004

Board Member  
Academy of Radiology Research  
Academy Board of Directors  
1 January, 1999

Committee Member  
Graduate Medical Education Committee  
Children's Hospital  
January, 2000 – present

Committee Member  
2000 Credentials Committee  
Children's Hospital  
Columbus, Ohio  
January, 2000 to January, 2001

Committee Member  
American College of Radiology  
Pediatric Radiology Committee  
October, 2001 - present

Secretary  
American Osteopathic College of Radiology  
October 1999 – September 2000

Vice-President  
American Osteopathic College of Radiology  
October 2000 – September 2002

President-Elect  
American Osteopathic College of Radiology  
October 2002 – September 2004

President  
American Osteopathic College of Radiology  
October 2004 – September 2005

Alternate Councilor to the American College of Radiology  
American College of Radiology  
September 2002 – 2004

Committee Member  
American Osteopathic College of Radiology  
Nominating Committee  
2001-2002 & 2003-04 year

Board Member  
Task Force on Revising Quality Programs  
American College of Radiology  
September 2004 – 2005

Committee Member  
American Osteopathic College of Radiology  
Finance Committee  
November 2005 – October 2007

Committee Member  
Mentor  
American Osteopathic College of Radiology  
Committee on New Physicians in Practice  
November 2005 – October 2009

Representative  
American Osteopathic College of Radiology  
AFIP Conjoint Committee for Radiology  
2005-2007

Representative  
American Osteopathic College of Radiology  
To the American College of Radiology  
2002-2005

Committee Member  
American Osteopathic College of Radiology  
Education Foundation  
2000 – 2005  
Treasurer 2005 - 2007

Member  
Tech Columbus  
December, 2008

Committee Member  
American Osteopathic College of Radiology  
Ceremonial Procedures, Fellowships, Honors and Memorials  
November 2009 – April 2011

Co-Chairman  
“Hands-On” How To Course Committee  
RSNA Refresher Course Committee  
2010-2013

#### EDITORIAL REVIEW BOARDS

Reviewer  
Cardiovascular and Interventional Radiology Journal  
2004-05

Editorial Reviewer  
Journal of Hong Kong College of Radiology  
13 Sept. 1999 to 31 Dec. 2010  
1 January 2011 – 31 December 2014

Editorial Reviewer  
Pediatric Radiology  
1994 to present

Editorial Reviewer  
American Journal of Roentgenology  
1993 to present

Editorial Reviewer-Radiology  
Journal of the American Osteopathic Association  
1990 to present

Editorial Reviewer  
Pediatrics  
November 2000 - Present

Journal Reviewer  
Radiology/AJR  
August, 2002 – Present

#### COURSES AND GUEST LECTURESHIPS:

1. **Imaging of the Pediatric Patient**  
Guest Lecturer  
Northern Kentucky University, Highland Heights, KY  
December 13, 1989



2. **The Neonatal Chest**  
NICU Symposium  
University of Cincinnati Hospital, Cincinnati, OH  
January 29, 1990
3. **Techniques of Invasive Sonography: A Hands-on Practicum**  
Course Moderator  
Children's Hospital Medical Center, Cincinnati, OH  
February 10, 1990
4. **Practical Models for Invasive Sonographic Training**  
Doppler Ultrasound with Emphasis on the Pediatric Patient  
Omni Netherland Plaza, Cincinnati, OH  
June 15-16, 1990
5. **Radiologic Management of Intussusception: Techniques and Rationale**  
Department of Radiology, Milton S. Hershey School of Medicine,  
Pennsylvania State University, Hershey, PA  
July 30, 1990
6. **Techniques of Invasive Sonography: A Hands-on Practicum**  
Department of Radiology, Milton S. Hershey School of Medicine,  
Pennsylvania State University, Hershey, PA  
July 30, 1990
7. **Airway Imaging Techniques in Children**  
The 15th Annual MG Paul H. Streit Memorial Otolaryngology Seminar  
Uniformed Services University of the Health Sciences, Bethesda, MD  
March 1, 1991
8. **Practical Models for Invasive Sonography**  
Magnetic Resonance Imaging, Color-Flow Doppler Ultrasound, and Other Special  
Imaging Techniques in the Pediatric Patient  
Park City, Utah  
March 11-15, 1991
9. **Childhood Intussusception: Diagnosis and Treatment**  
Magnetic Resonance Imaging, Color-Flow Doppler Ultrasound, and Other Special  
Imaging Techniques in the Pediatric Patient  
Park City, Utah  
March 11-15, 1991
10. **Airway Imaging Techniques in Children**  
AFIP Basic Science Course in Otolaryngology, Washington, D.C.  
May 7, 1991
11. **Techniques of Freehand Invasive Sonography ("Hands-On " Workshop)**  
The Radiological Society of North America, Chicago, IL  
December 1-6, 1991
12. **Pediatric Radiology Update: 1992**  
Uniformed Services Pediatrics Seminar, Crystal City, VA  
March 22-26, 1992

13. **Imaging of the Pediatric Airway**  
Uniformed Services Pediatrics Seminar, Crystal City, VA  
March 22-26, 1992
14. **Intussusception: Diagnosis and Treatment**  
AFIP Gastrointestinal Radiology Review, Bethesda, MD  
May 2-3, 1992
15. **Imaging of the Pediatric Airway**  
The 43rd Military Medical Surgical Clinical Congress, Willingen, Germany  
May 18-21, 1992
16. **Pediatric Radiology Update for the Non-Radiologist**  
The 43rd Military Medical Surgical Clinical Congress, Willingen, Germany  
May 18-21, 1992
17. **Radiologic Diagnosis of Developmental Dysplasia of the Hip**  
The 43rd Military Medical Surgical Clinical Congress, Willingen, Germany  
May 18-21, 1992
18. **Introduction to Pediatric Radiology**  
Madigan Army Medical Center, Tacoma, Washington  
11 August, 1992
19. **Techniques of Freehand Invasive Sonography ("How-To" Workshop)**  
Madigan Army Medical Center, Tacoma, Washington  
August 12, 1992
20. **Pediatric Airway Disease**  
Madigan Army Medical Center, Tacoma, Washington  
August 13, 1992
21. **Intussusception: Diagnosis and Treatment**  
Madigan Army Medical Center, Tacoma, Washington  
August 14, 1993
22. **Practical Models for Invasive Sonography Training**  
The Thirteenth Annual Sonic Symposium, Biloxi, Mississippi  
August 22, 1992
23. **Techniques of Invasive Sonography**  
The Thirteenth Annual Sonic Symposium, Biloxi, Mississippi  
August 22, 1992
24. **Sonographic Foreign Body Localization and Guided Removal**  
A.I. DuPont Institute Children's Hospital, Wilmington, Delaware  
October 9, 1992
25. **Diagnosis and Treatment of Childhood Intussusception**  
Children's Hospital Medical Center, Boston, Massachusetts  
October 15, 1992
26. **Diagnosis and Treatment of Childhood Intussusception: The Winds of Change**  
The Radiological Society of North America, Chicago, IL  
November 29 - December 4, 1992

27. **Techniques of Freehand Invasive Sonography ("Hands-On " Workshop)**  
The Radiological Society of North America, Chicago, IL  
November 29 - December 4, 1992
28. **Intussusception: Diagnosis and Treatment (Radiologic-Pathologic Correlation)**  
Armed Forces Institute of Pathology  
Radiologic-Pathologic Review Courses  
January-December, 1992
29. **Pediatric Radiology: An Overview For The General Medical Officer**  
Uniformed Services University of The Health Sciences  
MS IV Radiology Courses  
January- December, 1992
30. **Practical Models for Invasive Sonography Training**  
St. Mary's Hospital, Richmond, Virginia  
January 28-29, 1993
31. **Techniques of Invasive Sonography**  
St. Mary's Hospital, Richmond, Virginia  
January 28-29, 1993
32. **Pediatric Radiology: A Technical "How-To"**  
St. Mary's Hospital, Richmond, Virginia  
January 28-29, 1993
33. **Intussusception: Diagnosis and Treatment**  
AFIP Gastrointestinal Review Course  
May 1-2, 1993
34. **Childhood Intussusception: Diagnosis and Treatment**  
Children's National Medical Center, Washington, D.C.  
May 17, 1993
35. **Air Reduction of Intussusception: A "How-To" Workshop**  
Children's National Medical Center, Washington, D.C.  
May 17, 1993
36. **Diagnosis and Treatment of Childhood Intussusception: The Winds of Change**  
The American Osteopathic College of Radiology  
Neonatal, Pediatric, and Adolescent Radiology for the General Radiologist  
May 20-23, 1993
37. **Techniques of Invasive Sonography**  
The American Osteopathic College of Radiology  
Neonatal, Pediatric, and Adolescent Radiology for the General Radiologist  
May 20-23, 1993
38. **Pediatric Radiology: A Technical "How-To"**  
The American Osteopathic College of Radiology  
Neonatal, Pediatric, and Adolescent Radiology for the General Radiologist  
May 20-23, 1993
39. **Diagnosis and Treatment of Childhood Intussusception: The Winds of Change**  
Central Virginia Radiology Association  
Richmond, VA  
June 15, 1993

40. **Pediatric Radiology: A Technical "How-To"**  
Medical College of Virginia  
Richmond, VA  
June 16, 1993
41. **Diagnosis and Treatment of Intussusception: Radiologic-Pathologic Correlation**  
Medical College of Virginia  
Richmond, VA  
June 16, 1993
42. **Diagnosis and Treatment of Childhood Intussusception: The Winds of Change**  
Radiology Associates of Richmond  
Richmond, VA  
June 16, 1993
43. **Pediatric Radiology: A Technical "How-To"**  
Radiology Associates of Richmond  
Richmond, VA  
June 16, 1993
44. **Childhood Intussusception: Radiologic-Pathologic -Clinical Correlation**  
Children's Hospital Medical Center  
Cincinnati, Ohio  
July 19, 1993
45. **Childhood Intussusception: Treatment Options, Rationale, and Techniques**  
Children's Hospital Medical Center  
Cincinnati, Ohio  
July 20, 1993
46. **Pediatric Radiology: A Technical "How-To"**  
Children's Hospital Medical Center  
Cincinnati, Ohio  
July 20-21, 1993
47. **Techniques of Interventional Ultrasound**  
Current Concepts in Radiology Symposium  
Tacoma, WA  
19 August, 1993
48. **Pediatric Radiology: A Technical "How-To"**  
Current Concepts in Radiology Symposium  
Tacoma, WA  
20 August, 1993
49. **Diagnosis and Treatment of Childhood Intussusception: The Winds of Change**  
Refresher Course Moderator  
The Radiological Society of North America, Chicago, IL  
November 28- December 3, 1993
50. **Techniques of Freehand Invasive Sonography ("Hands-On " Workshop)**  
Workshop Moderator  
The Radiological Society of North America, Chicago, IL  
November 28- December 3, 1993

51. **Techniques of Invasive Breast Sonography ("Hands-On" Workshop)**  
Workshop Moderator  
The Radiological Society of North America, Chicago, IL  
November 28- December 3, 1993
52. **Intussusception: Diagnosis and Treatment (Radiologic-Pathologic Correlation)**  
Armed Forces Institute of Pathology  
Radiologic-Pathologic Review Courses  
January-December, 1993
53. **Pediatric Radiology: An Overview For The General Medical Officer**  
Uniformed Services University of The Health Sciences  
MS IV Radiology Courses  
January- December, 1993
54. **Pediatric Radiology: A Technical "How-To"**  
Eisenhower Medical Center  
Palm Springs, CA  
4-5 November, 1993
55. **Emergency Concepts in Pediatric Radiology**  
Eisenhower Medical Center  
Palm Springs, CA  
4-5 November, 1993
56. **Techniques of Interventional Ultrasound**  
Eisenhower Medical Center  
Palm Springs, CA  
4-5 November, 1993
57. **Intussusception: Diagnosis and Treatment (Radiologic-Pathologic Correlation)**  
Armed Forces Institute of Pathology  
Radiologic-Pathologic Review Courses  
January-December, 1994
58. **Pediatric Radiology: An Overview For The General Medical Officer**  
Uniformed Services University of The Health Sciences  
MS IV Radiology Courses  
January- December, 1994
59. **Intussusception: Diagnosis and Treatment (Radiologic-Pathologic Correlation)**  
Department of Radiology  
Boston University Hospital  
29 March, 1994
60. **Intussusception: Diagnosis and Treatment (Radiologic-Pathologic Correlation)**  
The Children's Hospital  
Boston, MA  
30 March, 1994
61. **Pediatric Radiography: A Technical "How-To"**  
**Roentgen's RAYve Review: A Diagnostic Seminar**  
St. Luke's Medical Center, Milwaukee, Wisconsin  
7 May, 1994

62. **Health Facilities Planning and Diagnostic Radiology: A Coordinated Care Force Concept**  
1994 Health Facilities Planning/Health Care Logistics Seminar  
Baltimore, MD  
17 May, 1994
63. **The Role of the Radiologist in Managed Health Care**  
American Osteopathic College of Radiology-Annual Meeting  
Las Vegas, Nevada  
10 October, 1994
64. **Cost Effective Strategies of Pediatric Radiology in Managed Health Care**  
American Osteopathic College of Radiology-Annual Meeting  
Las Vegas, Nevada  
11 October, 1994
65. **Techniques of Freehand Invasive Sonography ("Hands-On " Workshop)**  
Workshop Moderator  
The Radiological Society of North America, Chicago, IL  
November 27- December 2, 1994
66. **Techniques of Invasive Breast Sonography ("Hands-On" Workshop)**  
The Radiological Society of North America, Chicago, IL  
November 27- December 2, 1994
67. **Intestinal Intussusception: A Radiologic-Pathologic Correlation**  
Massachusetts General Hospital, Boston, MA  
21 December, 1994
68. **Current State of the Art of Childhood Intussusception Research**  
Massachusetts General Hospital, Boston, MA  
21 December, 1994
69. **Intussusception: Diagnosis and Treatment (Radiologic-Pathologic Correlation)**  
Armed Forces Institute of Pathology  
Radiologic-Pathologic Review Courses  
January-December, 1995
70. **Pediatric Radiology: An Overview For The General Medical Officer**  
Uniformed Services University of The Health Sciences  
MS IV Radiology Courses  
January- December, 1995
71. **Concepts in Emergency Pediatric Radiology**  
Children's Hospital, Columbus, OH  
2 March, 1995
72. **Techniques of Freehand Invasive Sonography ("Hands-On " Workshop)**  
Society of Cardiovascular and Interventional Radiology, Ft. Lauderdale, FL  
March 26-31, 1995
73. **Childhood Intussusception: Experimental and Clinical Correlates**  
St. Christopher's Children's Hospital, Philadelphia, PA  
11 May, 1995
74. **Air Reduction of Intussusception: Practical Management Concepts**  
St. Christopher's Children's Hospital, Philadelphia, PA  
12 May, 1995

75. **Childhood Intussusception: Management Perspectives in 1995**  
Surgical Grand Rounds, Children's Hospital, Columbus, OH  
6 September, 1995
76. **Invasive Breast Ultrasound Procedures ("Hands-On "Workshop)**  
Course Moderator  
Stanford Breast Imaging and Intervention Conference, Washington, DC  
10-12 September, 1995
77. **Techniques of Freehand Invasive Sonography ("Hands-On " Workshop)**  
Course Moderator  
The Radiological Society of North America, Chicago, IL  
26 November-1 December, 1995
78. **Functional Team Care in Radiological Healthcare**  
American Radiological Nurses Association, Chicago, IL  
27 November, 1995
79. **Pediatric Radiology: Tools of the Trade**  
7th Annual Refresher Course in Pediatric Radiology, Cincinnati, OH  
16-17 February, 1996
80. **Intussusception: An Overview**  
Techniques in Pediatric Radiology, Refresher Course in Pediatric Radiology, Cincinnati, OH  
16-17 February, 1996
81. **Functional Team Care in Radiological Healthcare**  
The Association of Vascular and Interventional Radiographers, Seattle, WA  
4 March, 1996
82. **Pediatric Interventional Radiology: Unique Aspects of Care for Infants and Children**  
The Association of Vascular and Interventional Radiographers, Seattle, WA  
4 March, 1996
83. **Hands-On Ultrasound Workshop**  
Society of Cardiovascular and Interventional Radiology, Seattle, WA  
6 March, 1996
84. **Hands-On Ultrasound Workshop**  
Course Moderator  
Society of Cardiovascular and Interventional Radiology, Seattle, WA  
7 March, 1996
85. **Childhood Intussusception: Management Perspectives in 1996**  
Pediatric Grand Rounds  
Children's Hospital, Columbus, OH  
28 March, 1996
86. **Current Concepts in Pediatric Radiology**  
Lounge and Learn Conference  
Children's Hospital, Columbus, Ohio  
29 March, 1996

87. **Techniques of Freehand Invasive Sonography ("Hands-On " Workshop)**  
Course Moderator  
The Radiological Society of North America, Chicago, IL  
2-6 December, 1996
88. **Childhood Intussusception: Management Prospectives in 1996**  
Emergency Medicine Grand Rounds  
Children's Hospital, Columbus, Ohio  
7,18 November-9 December, 1996
89. **Advances in Pediatric Radiology**  
Children's Hospital, Columbus, Ohio  
Grand Rounds  
13 February, 1997
90. **Pediatric Radiology: New PICC's for 1997**  
Children's Hospital, Columbus, Ohio  
Pediatric Pearls Conference  
6 March, 1997
91. **"Hands-on" Interventional Ultrasound**  
Society of Cardiovascular and Interventional Radiology  
Washington, D.C.  
12 March, 1997
92. **"Hands-on" Interventional Ultrasound**  
Course Moderator  
Society of Cardiovascular and Interventional Radiology  
Washington, D.C.  
13 March, 1997
93. **Pediatric Radiology: A Technical "How-To"**  
Central Ohio Society of Radiologic Technologists  
Columbus, Ohio  
9 April, 1997
94. **Techniques of Invasive Sonography in Infants and Children**  
Course Moderator  
The Society of Pediatric Radiology  
St. Louis, MO  
15 May, 1997
95. **Emergency Concepts in Pediatric Radiology**  
Ohio Osteopathic Association Convention  
Cleveland, Ohio  
21 June, 1997
96. **Pediatric Sonographic Imaging and Intervention:  
Imaging Excellence for Effective Care Direction**  
ATL Learning Center  
Bothell, WA  
14-16 July, 1997



97. **Pediatric Sonographic-Pathologic Correlation:  
A Case Study Approach**  
ATL Learning Center  
Bothell, WA  
14-16 July, 1997
98. **Soft Tissue Foreign Bodies:  
Sonographic Localization, Characterization, and Guided Removal**  
ATL Learning Center  
Bothell, WA  
14-16 July, 1997
99. **Pediatric Radiography and Fluoroscopy:  
Tools of the Trade**  
Marion General Hospital  
Marion, OH  
31 July, 1997
100. **Essentials of Radiology for the Primary Care Nurse Practitioner**  
Otterbein College  
Westerville, OH  
11 August, 1997
101. **Pediatric Radiology: Clinical Case Conference**  
Visiting Professor  
Medical University of Ohio  
Toledo, OH  
17 September, 1997
102. **Techniques of Invasive Sonography: Principles, Applications and Learning Systems:**  
Guest Lecturer  
Northwestern Ohio Radiological Society  
Toledo, OH  
17 September, 1997
103. **Techniques of Invasive Sonography: A "How-To" Course**  
American Osteopathic College of Radiology  
San Francisco, CA  
15-19 October, 1997
104. **Emergency Concepts in Pediatric Radiology**  
American Osteopathic College of Radiology  
San Francisco, CA  
15-19 October, 1997
105. **Pediatric Head and Neck Radiology for the General Radiologists**  
American Osteopathic College of Radiology  
San Francisco, CA  
15-19 October, 1997
106. **Practical Issues in Pediatric Radiography and Fluoroscopy**  
American Osteopathic College of Radiology  
San Francisco, CA  
15-19 October, 1997

107. **Pediatric Radiology: A Technical "How-To"**  
Guest Lecturer  
North Central Technical College  
Mansfield, OH  
15 November, 1997
108. **Techniques of Freehand Invasive Sonography: ("Hands-On" Workshop)**  
Course Moderator  
The Radiological Society of North America  
Chicago, IL  
30 November - 5 December, 1997
109. **Pediatric Liver Tumors: Radiologic-Pathologic Correlation**  
Armed Forces Institute of Pathology  
Radiologic-Pathologic Correlation Course 1998 Sessions  
Washington, DC
110. **Current Concepts in Radiology for Primary Care Physicians**  
Course Moderator  
Columbus, Ohio 25 February, 1998
111. **Invasive Sonography "Hands-On" Course**  
Course Moderator/Speaker  
Society for Cardiovascular and Interventional Radiology Meeting  
San Francisco, CA 28 February - 5 March, 1998
112. **Emergency Concepts in Pediatric Radiology**  
Visiting Professor  
Western Pennsylvania Hospital, Pittsburgh, PA 12 March, 1998
113. **Pediatric Radiology Board Review**  
Visiting Professor  
Western Pennsylvania Hospital, Pittsburgh, PA 12-13 March, 1998
114. **Pediatric Head and Neck Radiology for the General Radiologist**  
Visiting Professor  
Western Pennsylvania Hospital, Pittsburgh, PA 13 March, 1998
115. **Techniques of Pediatric Radiography**  
Ohio Society of Radiologic Technologists - Annual Meeting  
Columbus, Ohio 28 March, 1998
116. **Techniques of Pediatric Fluoroscopy**  
Ohio Society of Radiologic Technologists - Annual Meeting  
Columbus, Ohio 28 March, 1998
117. **Techniques of Invasive Sonography**  
Course Director  
A "Hands-On" Workshop. American College of Osteopathic Radiology, Annual Meeting  
Kansas City, MO 14-17 May, 1998

118. **Pediatric Abdominal Emergencies: Radiologic Management Strategies**  
Course Moderator/Speaker  
Practical Aspects of Diagnostic Radiology & Medical Imaging  
Vanderbilt University School of Medicine  
Jackson Hole, WY 30 July - 2 August, 1998
119. **Workshop: Interventional Ultrasound Techniques**  
Course Moderator/Speaker  
Practical Aspects of Diagnostic Radiology & Medical Imaging  
Vanderbilt University School of Medicine  
Jackson Hole, WY 30 July - 2 August, 1998
120. **Practical Techniques in Pediatric Radiography and Fluoroscopy**  
Course Moderator/Speaker  
Practical Aspects of Diagnostic Radiology & Medical Imaging  
Vanderbilt University School of Medicine  
Jackson Hole, WY 30 July - 2 August, 1998
121. **Childhood Intussusception: Diagnostic and Therapeutic Management Strategies**  
Visiting Professor, Department of Radiology  
The Mercy Hospital of Pittsburgh  
19 August, 1998
122. **Radiology Resident Board Review**  
Visiting Professor, Department of Radiology  
The Mercy Hospital of Pittsburgh  
19 August, 1998
123. **Childhood Intussusception: Principles and Practical Techniques for Radiologic Technologists**  
Visiting Professor, Department of Radiology  
The Mercy Hospital of Pittsburgh  
19 August, 1998
124. **Diagnostic Radiology Review**  
Board Review Course - ACEP  
Columbus, Ohio - 13 September, 1998
125. **Pyloric Stenosis: Sonographic Diagnosis and Care**  
Course Moderator/Speaker  
The Society of Diagnostic Medical Sonographers  
Orlando, Florida 19 September, 1998
126. **Soft-Tissue Foreign Bodies: Diagnostic and Therapeutic Radiological Management**  
Course Moderator/Speaker  
The Society of Diagnostic Medical Sonographers  
Orlando, Florida 19 September, 1998
127. **Emergency Interventional Radiology in the Pediatric Chest and Abdomen**  
Course Moderator/Speaker  
American Osteopathic College of Radiology Annual Convention  
Tucson, Arizona 14 October, 1998

128. **Pediatric Liver Tumor: Radiologic Pathologic Correlation**  
Course Moderator/Speaker  
American Osteopathic College of Radiology Annual Convention  
Tucson, Arizona 14 October, 1998
129. **Introduction to Clinical Radiology**  
Course Moderator/Speaker  
Otterbein College - Family Practice Nurse Practitioner Program  
Westerville, Ohio 20 October, 1998
130. **Childhood Intussusception: Successes and Failures of Air Enema Reduction**  
Visiting Professor Lecture  
Riley Children's Hospital  
Indianapolis, Indiana 27 October, 1998
131. **Freehand Invasive Sonography: Principles, Applications and Learning Systems**  
Visiting Professor Lecture  
Riley Children's Hospital  
Indianapolis, Indiana 27 October, 1998
132. **Radiology Resident Board Review**  
Visiting Professor Lecture  
Riley Children's Hospital  
Indianapolis, Indiana 27 October, 1998
133. **Emergency Interventional Radiology in Pediatric Chest and Abdomen**  
Visiting Professor Lecture  
Toronto Interventional Radiology Symposium  
The Hospital for Sick Children  
Toronto, Ontario 4 November, 1998
134. **Pediatric Abdominal Emergencies: Radiologic Management Strategies**  
Visiting Professor Lecture  
Toronto Interventional Radiology Symposium  
The Hospital for Sick Children  
Toronto, Ontario 4 November, 1998
135. **Radiologic Management of Pediatric Airway Disorders**  
Visiting Professor Lecture  
5th Annual Interventional/Vascular Course  
The Hospital for Sick Children  
Toronto, Ontario 4 November, 1998
136. **Invasive Sonography: Principles, Applications, and Learning Systems**  
5th Annual Interventional/Vascular Course  
Toronto, Ontario 5-7 November, 1998
137. **Techniques of Invasive Sonography: "Hands-On" Course**  
5th Annual Interventional/Vascular Course  
Toronto, Ontario 5-7 November, 1998
138. **The Value, Safety and Efficacy of Temporary Percutaneous Nephrostomy Drainage in Young Children**  
The Society for Pediatric Urology and The American Urological Association Annual Meeting  
Dallas Texas 1 May, 1998

139. **Invasive Sonography**  
Course Moderator/Speaker  
American Osteopathic College of Radiology  
1999 Mid year Conference  
San Antonio, Texas 20-23 May, 1999
140. **Radiologic Management of Soft Tissue Foreign Bodies**  
Course Moderator/Speaker  
American Osteopathic College of Radiology  
1999 Mid year Conference  
San Antonio, Texas 20-23 May, 1999
141. **Techniques of Freehand Invasive Sonography: A “Hands’On” Course-#1**  
Course Moderator/Speaker  
American Osteopathic College of Radiology  
1999 Mid year Conference  
San Antonio, Texas 20-23 May, 1999
142. **Soft Tissue Foreign Bodies: Diagnostic and Therapeutic Radiological Management**  
Visiting Professor Lecture  
Massachusetts General Hospital  
Department of Radiology  
Boston, Massachusetts 16 May, 1999
143. **Techniques in Invasive Ultrasound “Hands-On’ Course**  
Visiting Professor Seminar  
Massachusetts General Hospital  
Department of Radiology  
Boston, Massachusetts 16 May, 1999
144. **Pediatric Trauma Radiology**  
Course Moderator/Speaker  
North Central Ohio Society of Radiology Technologists  
North Central Ohio Technical College  
Mansfield, Ohio 24 April, 1999
145. **Techniques of Freehand Invasive Sonography: A “Hands’On” Course**  
Visiting Professor  
Walter Reed Army Medical Center  
Washington D. C.  
January 12, 2000
146. **Renal Cystic Disease: Sonographic Pathologic Correlations**  
Visiting Professor  
Walter Reed Army Medical Center  
Washington D. C.  
January 13, 2000
147. **Pediatric Liver Tumor: Radiologic Pathologic Correlation**  
Visiting Scientist Lecture  
Armed Forces Institute of Pathology  
Washington D. C.  
January – December, 2000 Courses

148. **Cervical Spine Abnormalities In Down Syndrome: Radiologic Correlates**  
Course Moderator/Speaker  
Down Syndrome Association  
Dublin, Ohio  
January 24, 2000
149. **Current Concerns of Pediatric Emergency Room Radiology**  
Invited Lecture/Speaker  
The Northwestern Ohio Radiological Society  
Toledo, Ohio  
February 16, 2000
150. **Pediatric Radiology Board Preparation**  
Visiting Professor  
Medical University of Ohio, Department of Radiology  
Toledo, Ohio  
February 16, 2000
151. **Current Concepts of Emergency Pediatric Radiology**  
Visiting Professor  
Medical University of Ohio, Department of Radiology  
Toledo, Ohio  
February 16, 2000
152. **Using Interventional Radiology in the Pediatric Emergency Department**  
Course Moderator/Speaker  
Expanding the Practice of Emergency Medicine: Providing Emergency Care for the Child and Young Adult  
Atlanta, Georgia  
February 26, 2000
153. **Challenging Pediatric Radiographs**  
Course Moderator/Speaker  
Expanding the Practice of Emergency Medicine: Providing Emergency Care for the Child and Young Adult  
Atlanta, Georgia  
February 26, 2000
154. **Correlative Imaging of Pediatric Chest Masses**  
American Osteopathic College of Radiology Annual Conference,  
Scottsdale, AZ  
September 20-24, 2000
155. **Emergency Concepts in Pediatric Chest Radiology**  
American Osteopathic College of Radiology Annual Conference  
Scottsdale, AZ  
September 20-24, 2000
156. **2000 Medical Staff Education Series**  
Course Moderator/Speaker  
Update On Pediatric Radiology  
Bethesda Hospital, Zanesville, Ohio  
October 10, 2000

157. **Ultrasound-Guided Injection of Small Joints of the Feet in Children with Juvenile Rheumatoid Arthritis (JRA)**  
Course Moderator/Speaker  
American College of Rheumatology  
Philadelphia, PA  
October 30, 2000
158. **Pediatric Hip Sonography: A Practical Update**  
Course Moderator/Speaker  
Annual Ultrasound Update Course– United Hospitals  
St. Paul MN  
November 4, 2000
159. **Pediatric Spine Sonography: Diagnosis and Guided Intervention**  
Course Moderator/Speaker  
Annual Ultrasound Update Course– United Hospitals  
St. Paul MN  
November 4, 2000
160. **Hypertrophic Pyloric Stenosis: Sonographic Diagnosis and Care Management**  
Course Moderator/Speaker  
Annual Ultrasound Update Course– United Hospitals  
St. Paul MN  
November 4, 2000
161. **Infectious Disease: Radiologic Correlation in the Chest and GI Tract**  
Course Moderator/Speaker  
Ohio University College of Medicine  
Athens, OH  
July 6, 2001
162. **Radiologic-Pathologic Correlation of Tumors in Children's Hospital**  
Course Moderator/Speaker  
Ohio University College of Medicine  
Athens, OH  
July 6, 2001
163. **Pediatric Critical Care “Do you See What I See?” Pediatric Radiology Review**  
Course Moderator/Speaker  
The 2<sup>nd</sup> annual Medflight Symposium: Perspectives in Emergency & Critical Care  
Wyndham Dublin Hotel  
Columbus, OH  
September 15, 2001
164. **Soft Tissue and Intraarticular Foreign Bodies: Outcomes with Ultrasound-Guided Removal in Children**  
Course Moderator/Speaker  
Musculoskeletal Ultrasound Conference 2001  
Washington DC  
October 9, 2001

165.     **Ultrasound-Guided Injection of Small Joints of the Feet in Children with Juvenile Rheumatoid Arthritis (Jra)**  
Course Moderator/Speaker  
Musculoskeletal Ultrasound Conference 2001  
Washington DC  
October 9, 2001
  
166.     **Pediatric head and Neck Masses: Radiologic Diagnosis and Intervention**  
Course Moderator/Speaker  
Medical University of Ohio  
Toledo, OH  
February 20, 2002
  
167.     **Radiology for the Family Nurse Practitioner**  
Course Moderator/Speaker  
Otterbein College  
Westerville, OH  
March 7, 2002
  
168.     **Hypertrophic Pyloric Stenosis**  
Course Moderator/Speaker  
Minnesota Society of Diagnostic Ultrasound  
22<sup>nd</sup> Annual Spring Seminar  
Brooklyn Park, MN  
23-24 March, 2002
  
169.     **Ultrasound Guided Foreign Body Removal**  
Course Moderator/Speaker  
Minnesota Society of Diagnostic Ultrasound  
22<sup>nd</sup> Annual Spring Seminar  
Brooklyn Park, MN  
23-24 March, 2002
  
170.     **Pediatric Radiographic and Fluoroscopic Techniques and Tools**  
Course Moderator/Speaker  
Pediatric Imaging and Care: Techniques and Concepts for Excellence  
Columbus, OH  
April 13, 2002
  
171.     **Pediatric Radiographic and Fluoroscopic Toolbag: A “Hands-on” Course**  
Course Moderator/Speaker  
Pediatric Imaging and Care: Techniques and Concepts for Excellence  
Columbus, OH  
April 13, 2002
  
172.     **The Human Challenge of Pediatric Imaging and Care**  
Course Moderator/Speaker  
Pediatric Imaging and Care: Techniques and Concepts for Excellence  
Columbus, OH  
April 13, 2002
  
173.     **Competency Maintenance Training System for Pediatric US Guided Hip Arthrocentesis**  
Course Moderator/Speaker  
The Society for Pediatric Radiology 2002  
Philadelphia, PA  
May 1, 2002



174. **Intraarticular Steroid Injections in Small Foot Joints of Patients with JRA**  
Course Moderator/Speaker  
The Society for Pediatric Radiology 2002  
Philadelphia, PA  
May 1, 2002
175. **Dual-Drug, Time-Limited Contact Sclerotherapy of Cervicofacial Lymphangiomas**  
Course Moderator/Speaker  
Head and Neck Surgery/Rhinology and Paranasal Sinuses  
American Society of Pediatric Otolaryngology  
Boca Raton, FL  
May 13, 2002
176. **Childhood Intussusception \*radiologic, pathologic and surgical correlation**  
Course Moderator/Speaker  
Oregon Radiologic Society 2002  
Portland, OR  
May 16, 2002
177. **Pediatric Liver Tumors: Radiologic and Pathologic Correlation**  
Course Moderator/Speaker  
Oregon Radiologic Society 2002  
Portland, OR  
May 16, 2002
178. **Pediatric Cystic Renal Disease: Radiologic and Pathologic Correlation**  
Course Moderator/Speaker  
Oregon Radiologic Society 2002  
Portland, OR  
May 16, 2002
179. **Soft Tissue Foreign Bodies: Radiologic Diagnosis & Interventional Management**  
Course Moderator/Speaker  
Oregon Radiologic Society 2002  
Portland, OR  
May 16, 2002
180. **Success is a choice.....For you and for others**  
Invited Speaker  
Academic Achievement Awards Banquet  
Bloom Carroll High School  
Carroll, OH  
May 23, 2002
181. **Emergency Concepts in Pediatric Radiology**  
Course Moderator/Speaker  
National Telemedicine Lecture  
AOCR  
July 10, 2002
182. **Pediatric Hip Arthrocentesis: A "Hands-On" Course**  
Visiting Professor  
Children's Hospital  
Boston, MA  
July-1 August, 2002

183. **Soft-Tissue Foreign Bodies: Sonographic Diagnosis, Localization, and Guided Removal**  
Visiting Professor  
Children's Hospital  
Boston, Ma  
31 July-1 August, 2002
184. **Foreign Bodies: Diagnosis & Retrieval**  
Course Moderator/Speaker  
12<sup>th</sup> Annual Musculoskeletal Ultrasound Conference  
Brussels, Belgium  
August-September 4, 2002
185. **Sonography of the Pediatric Hip and Spine**  
SDMS 19<sup>th</sup> Annual Conference, Hilton Atlanta Hotel, Atlanta, GA,  
October 3-6, 2002
186. **Soft Tissue Foreign Bodies: Sonographic Identification, localization and guided removal**  
Course Moderator/Speaker  
Interamerican College of Radiology  
Cartagena, Columbia  
12-16 October, 2002
187. **Pediatric Spine Including Interventional**  
Course Moderator/Speaker  
32<sup>nd</sup> Annual Scientific Meeting of the Australasian Society of Ultrasound In Medicine  
Gold Coast, Australia  
19-22 September, 2002
188. **Clubfoot**  
Course Moderator/Speaker  
Interamerican College of Radiology  
Cartagena, Columbia
189. **Ultrasound Guided Injections of Joints and Tendon Sheaths in Rheumatoid Arthritis**  
Course Moderator/Speaker  
Interamerican College of Radiology  
Cartagena, Columbia  
12-16 October, 2002
190. **Ultrasound for Foreign Bodies**  
Course Moderator/Speaker  
Interamerican College of Radiology  
Cartagena, Columbia  
12-16 October, 2002
191. **Interventional Radiology in Pediatric Abodmen**  
Course Moderator/Speaker  
Interamerican College of Radiology  
Cartagena, Columbia  
12-16 October, 2002
192. **Pediatric Musculoskeletal Interventional Radiology: New Concepts**  
Course Moderator/Speaker  
Interamerican College of Radiology  
Cartagena, Columbia  
12-16 October, 2002

193. **Pediatric Radiology: Do You See What I See?**  
Course Moderator/Speaker  
Children's Hospital  
Patient Care Services  
Columbus, OH  
October 24, 2002
194. **Radiologic Care of the Pediatric Patient: It's More Than Just Pictures**  
2002 School Health Update, Columbus Convention Center,  
November 1, 2002
195. **The Basics of Radiology Film Interpretation for the Nurse Practitioner**  
Course Moderator/Speaker  
Otterbein College  
Westerville, OH  
March 4, 2003
196. **Pediatric Head & Neck/Diagnosis and Intervention**  
Course Moderator/Speaker  
Minnesota Society of Diagnostic Ultrasound  
23<sup>rd</sup> Annual Spring Seminar  
Brooklyn Park, MN  
30 March, 2003
197. **Abdominal Masses in Children**  
Course Moderator/Speaker  
Minnesota Society of Diagnostic Ultrasound  
23<sup>rd</sup> Annual Spring Seminar  
Brooklyn Park, MN  
30 March, 2003
198. **Evaluation of Pediatric Hips**  
Course Moderator/Speaker  
Minnesota Society of Diagnostic Ultrasound  
23<sup>rd</sup> Annual Spring Seminar  
Brooklyn Park, MN  
30 March, 2003
199. **Interventional Sonography of Chest & Abdomen**  
Course Moderator/Speaker  
AOCR Mid Year Conference  
Dearborn, MI  
10-13 April, 2003
200. **Selected Techniques for Musculoskeletal Interventional Sonography**  
Course Moderator/Speaker  
AOCR Mid Year Conference  
Dearborn, MI  
10-13 April, 2003
201. **Sonographic Diagnosis & Interventional of Soft Tissue Foreign Bodies**  
Course Moderator/Speaker  
AOCR Mid Year Conference  
Dearborn, MI  
13 April, 2003

202.     **Sonography of Abdominal Masses in Children**  
Course Moderator/Speaker  
AOCR Mid Year Conference  
Dearborn, MI  
10-13 April, 2003
203.     **Renal Cystic Disease: Sonographic & Patologic Correlation**  
Course Moderator/Speaker  
AOCR Mid Year Conference  
Dearborn, MI  
10-13 April, 2003
204.     **Sonography of Pediatric GI Masses**  
Course Moderator/Speaker  
AOCR Mid Year Conference  
Dearborn, MI  
10-13 April, 2003
205.     **Pneumonia, Bronchitis and Chest-tubes**  
Course Moderator/Speaker  
21<sup>st</sup> Annual Pediatric Infectious Diseases Conference  
Children's Hospital, Columbus, OH,  
25 September, 2003
206.     **Soft Tissue Foreign Bodies: Diagnostic and Therapeutic Radiological Management**  
Course Moderator/Speaker  
Musculoskeletal Ultrasound 13<sup>th</sup> Annual Conference  
Washington DC  
7-9 October, 2003
207.     **Dynamic Sonographic Examination of the Congenital Clubfoot**  
Course Moderator/Speaker  
Musculoskeletal Ultrasound 13<sup>th</sup> Annual Conference  
Washington DC  
7-9 October, 2003
208.     **Musculoskeletal Interventional Sonographic Procedures: A "Hands-on" Course**  
Course Moderator/Speaker  
Musculoskeletal Ultrasound 13<sup>th</sup> Annual Conference  
Washington DC  
7-9 October, 2003
209.     **Organizational Structures, Affiliations and Hybrids**  
Course Moderator/Speaker  
SCORCH 2003 Annual Meeting  
Chicago, IL  
10-11 October, 2003
210.     **Radiological Management of Common Pediatric Abdominal Emergencies**  
Course Moderator/Speaker  
AOCR 2003 Annual Convention "Proficiency in Radiology"  
Miami, FL  
21-25 October, 2003

211. **The Radiological Management of Pediatric Chest Masses**  
Course Moderator/Speaker  
AOCR 2003 Annual Convention "Proficiency in Radiology"  
Miami, FL  
21-25 October, 2003
212. **Pediatric Head and Neck Masses: Radiologic Diagnosis and Intervention**  
Course Moderator/Speaker  
AOCR 2003 Annual Convention "Proficiency in Radiology"  
Miami, FL  
21-25 October, 2003
213. **Pediatric Head and Neck Masses: Radiologic Diagnosis and Intervention**  
Visiting Professor  
Children's Hospital  
Boston, Ma  
11 November, 2003
214. **Techniques of Pediatric Invasive Sonography: A Hands On" Course**  
Visiting Professor  
Children's Hospital  
Boston, Ma  
11 November, 2003
215. **"Pediatric Pneumonia: Radiologic-Pathologic 'Correlation'"**  
Course Moderator/Speaker  
Riverside Methodist Hospital  
Columbus, OH  
21 January, 2004
216. **Radiographic-Pathologic Correlation: Case Discussions**  
Course Moderator/Speaker  
Pediatric Imaging and Care: Techniques and Concepts for Excellence  
Columbus, OH  
5 March, 2004
217. **Techniques of Invasive Sonography (Hands On Workshop)**  
Course Moderator/Speaker  
Northwestern Ohio Radiological Society  
Toledo, OH 43623  
21 April, 2004
218. **Techniques of Pediatric Invasive Sonography: A "Hands On" Course**  
Course Moderator/Speaker  
AMEDD Radiology Course  
Current Concepts in Imaging  
Washington DC  
15 April, 2004
219. **"Healing Wounds on the Tigris: Regrowth of Medicine in Iraq**  
Course Moderator/Speaker  
Stecker Scholar Presentation  
Children's Hospital, Columbus, OH  
14 June, 2004

220. **“Radiology Update”**  
Course Moderator/Speaker  
Grand Rounds  
Children’s Hospital, Columbus, OH  
17 June, 2004
221. **Pediatric Sonography: Unique Challenges in the Hip and Spine”**  
Course Moderator/Speaker  
Riverside Family Practice  
Columbus, OH  
18 August, 2004
222. **Head & Neck Masses**  
Visiting Professor  
Grandview Hospital, Dayton, OH  
14 September, 2004
223. **Pediatric Neck Masses**  
Course Moderator/Speaker  
RPAC Education Day  
Victorian Village Health Center  
Columbus, OH  
15 September, 2004
224. **Pediatric Head & Neck Masses: Radiologic Diagnosis & Intervention**  
Visiting Professor  
The Atis K. Freimanis Radiology Visiting Radiology Program  
Michigan State University, East Lansing, MI  
28 September, 2004
225. **Radiology Board Review – Case Conference**  
Visiting Professor  
The Atis K. Freimanis Radiology Visiting Radiology Program  
Michigan State University, East Lansing, MI  
28 September, 2004
226. **The Radiological Management of Soft Tissue Foreign Bodies: Diagnosis and Intervention**  
American Osteopathic College of Radiology  
Distance Learning Program  
Teleconference  
29 September, 2004
227. **Sonography of the Congenital Clubfoot: A “Hands on” Symposium**  
Pediatric Musculoskeletal Ultrasound Symposium  
Course Moderator/Speaker  
Giannina Gaslini Pediatric Hospital  
Genoa, Italy  
16 October, 2004
228. **Sonographic Management of Soft Tissue Foreign Bodies**  
14<sup>th</sup> Annual Conference on Musculoskeletal Ultrasound  
Musculoskeletal Ultrasound Society  
Course Moderator/Speaker  
Bologna, Italy  
17-21 October, 2004

229. **Techniques of Invasive Sonography: Advanced Workshop**  
14<sup>th</sup> Annual Conference on Musculoskeletal Ultrasound  
Musculoskeletal Ultrasound Society  
Course Moderator/Speaker  
Bologna, Italy  
17-21 October, 2004
230. **Iraqi Medical Specialty Mission in Basra's Children's Hospital**  
Course Moderator/Speaker  
Central Ohio Perianesthesia Nurses Association (COPANA)  
Columbus Children's Hospital  
11 November 2004
231. **Healing Wounds on the Tigris: Regrowth of Medicine in Iraq**  
Course Moderator/Speaker  
Central Ohio Pediatric Society (COPS)  
Columbus, OH  
17 November 2004
232. **Pediatric Head and Neck Masses: State of the Art in Diagnosis and Intervention**  
Visiting Professor  
Grand Rounds  
Children's Medical Center  
Dayton, OH  
2 February, 2005
233. **Basic Interventional Musculoskeletal Ultrasound**  
Course Moderator/Speaker  
AOCR Mid Year Conference  
Chicago, IL  
16-17 April, 2005
234. **Techniques of Invasive Musculoskeletal Sonography – "A Hands-on Workshop"**  
Course Moderator/Speaker  
AOCR Mid Year Conference  
Chicago, IL  
16-17 April, 2005
235. **Unique Aspects of Pediatric Fractures**  
Course Moderator/Speaker  
AOCR Mid Year Conference  
Chicago, IL  
16-17 April, 2005
236. **Techniques of Invasive Sonography – "A Hands-on Course"**  
Course Moderator/Speaker  
United States Army Medical Department  
Current Concepts in Imaging Conference  
20 April, 2005
237. **Interventional Radiology: Current State of the Art"**  
Ped Potpourri/Doctors Hospital  
Columbus, OH  
30 April, 2005

238. **Pediatric Head & Neck Masses: State of the Art Diagnosis and Intervention**  
University of Massachusetts  
Visiting Professor Grand Rounds  
16 May, 2005
239. **Pediatric Radiology Unknown Case Conference**  
University of Massachusetts  
Visiting Professor Lecture  
16 May, 2005
240. **Techniques of Freehand Invasive Sonography: A “Hands on” Course**  
University of Massachusetts  
Visiting Professor Lecture  
16 May, 2005
241. **Pyloric Stenosis**  
SDMS Annual Conference  
Course Moderator/Speaker  
Dallas, TX  
8-9 October, 2005
242. **Pediatric Sonography: Unique Challenges in the Hips & Spine**  
SDMS Annual Conference  
Course Moderator/Speaker  
Dallas, TX  
8-9 October, 2005
243. **Pediatric Abdominal Masses-Characteristics with Diagnostic Sonography**  
SDMS Annual Conference  
Course Moderator/Speaker  
Dallas, TX  
8-9 October, 2005
244. **Head & Neck Chronicle Masses in Children: Diagnosis & Treatment**  
Course Moderator/Speaker  
Interamerican College of Radiology  
Cartagena, Columbia  
12-16 October, 2005
245. **Invasive Ultrasound Techniques**  
Course Moderator/Speaker  
Interamerican College of Radiology  
Cartagena, Columbia  
12-16 October, 2005
246. **Pediatric Hip & Spine Ultrasound**  
Course Moderator/Speaker  
Interamerican College of Radiology  
Cartagena, Columbia  
12-16 October, 2005



247. **Pediatric Ultrasound: Pylorus, Hips and Spine**  
Course Moderator/Speaker  
AOCR 2005 Annual Convention "Current Practice and Trends in Medical Imaging"  
AOA Unified Convention  
Orlando, FL  
23-27 October, 2005
248. **Pediatric Infections: Pneumonia, Appendicitis and UTI**  
Course Moderator/Speaker  
AOCR 2005 Annual Convention "Current Practice and Trends in Medical Imaging"  
AOA Unified Convention  
Orlando, FL  
23-27 October, 2005
249. **Pediatric Head and Neck Masses**  
Course Moderator/Speaker  
AOCR 2005 Annual Convention "Current Practice and Trends in Medical Imaging"  
AOA Unified Convention  
Orlando, FL  
23-27 October, 2005
250. **Pediatric Abdominal Masses**  
Course Moderator/Speaker  
AOCR 2005 Annual Convention "Current Practice and Trends in Medical Imaging"  
AOA Unified Convention  
Orlando, FL  
23-27 October, 2005
251. **AOCP Radiology Workshop**  
Course Moderator/Speaker  
AOCR 2005 Annual Convention "Current Practice and Trends in Medical Imaging"  
AOA Unified Convention  
Orlando, FL  
23-27 October, 2005
252. **Ultrasound Guided Workshops**  
Course Moderator/Speaker  
Musculoskeletal Ultrasound Society Annual Convention  
Orlando, FL  
6-8 November, 2005
253. **Exploring Your Future in Radiology: Interventional Sonography**  
Course Moderator/Speaker  
Radiological Society of North America  
Student Outreach Series  
1 December, 2005
254. **Techniques of Pediatric Invasive Sonography: A "Hands-on" Course**  
Visiting Professor  
Children's Hospital  
Boston, Ma  
7-8 December, 2005

255. **Radiological Diagnosis & Intervention for Common Pediatric Infections**  
Visiting Professor  
Children's Hospital  
Boston, Ma  
7-8 December, 2005
256. **Pediatric Hip Disorders: Radiologic Pathologic Correlation**  
Course Moderator/Speaker  
Children's Hospital  
Boston, Ma  
7-8 December, 2005
257. **Innovations in Radiology**  
Course Moderator/Speaker  
Central Ohio Perianesthesia Nurses Association (COPANA)  
Columbus Children's Hospital  
12 January, 2006
258. **Pediatric Imaging**  
Course Moderator/Speaker  
College of Nursing, The Ohio State University College of Medicine  
Columbus, OH  
28 February, 2006
259. **Pyloric Stenosis**  
Course Moderator/Speaker  
Minnesota Society of Diagnostic Ultrasound 26<sup>th</sup> Annual Spring Seminar  
Brooklyn Park, MN  
26 March, 2006
260. **Pediatric Sonography: Unique Challenges in the Hip and Spine**  
Course Moderator/Speaker  
Minnesota Society of Diagnostic Ultrasound  
26<sup>th</sup> Annual Spring Seminar  
Brooklyn Park, MN  
26 March, 2006
261. **Pediatric Abdominal Masses: Diagnosis & Treatment**  
Visiting Professor  
Tripler Army Medical Center  
Educational Lecture Series  
Honolulu, HI  
12-18 March, 2006
262. **Pediatric Radiology Case Conference**  
Visiting Professor  
Tripler Army Medical Center  
Educational Lecture Series  
Honolulu, HI  
12-18 March, 2006

263. **Pediatric Chest Masses**  
Visiting Professor  
Tripler Army Medical Center  
Educational Lecture Series  
Honolulu, HI  
12-18 March, 2006
264. **Radiology Diagnosis & Treatment of Foreign Bodies**  
Visiting Professor  
Tripler Army Medical Center  
Educational Lecture Series  
Honolulu, HI  
12-18 March, 2006
265. **Pediatric Radiology Mock Boards**  
Visiting Professor  
Tripler Army Medical Center  
Educational Lecture Series  
Honolulu, HI  
12-18 March, 2006
266. **Pediatric Abdominal Emergency**  
Visiting Professor  
Tripler Army Medical Center  
Educational Lecture Series  
Honolulu, HI  
12-18 March, 2006
267. **Pediatric Head & Neck Masses: Radiological Diagnosis**  
Visiting Professor  
Tripler Army Medical Center  
Educational Lecture Series  
Honolulu, HI  
12-18 March, 2006
268. **Pediatric Head & Neck Masses: Interventional Radiological Management**  
Visiting Professor  
Tripler Army Medical Center  
Educational Lecture Series  
Honolulu, HI  
12-18 March, 2006
269. **Innovations and Techniques for Head and Neck Intervention**  
Course Moderator/Speaker  
AOCR Mid-Year Conference  
Dearborn, MI  
6-9 April, 2006
270. **Techniques of Head & Neck Invasive Sonography – “A Hands-on Workshop”**  
Course Moderator/Speaker  
AOCR Mid-Year Conference  
Dearborn, MI  
6-9 April, 2006

271. **Pediatric Head and Neck Masses: State of the Art in Diagnosis and Intervention**  
Visiting Professor  
Sunny Downstate Medical Center  
Brooklyn, NY  
11 April, 2006
272. **Ultrasound-guided Interventional Procedures “Hands-On Workshop”**  
Course Moderator/Speaker  
MSUS-WFUMB (World Federation for Ultrasound in Medicine and Biology)  
Seoul, Korea  
28 May – 1 June 2006
273. **Radiofrequency Ablation: Principles, Techniques, Equipment, Tips and Tricks(I)**  
Course Faculty  
MSUS-WFUMB (World Federation for Ultrasound in Medicine and Biology)  
Seoul, Korea  
28 May – 1 June 2006
274. **Techniques of Musculoskeletal Invasive Sonography: “A Hands-on Course**  
Course Moderator/Speaker  
MSUS-WFUMB (World Federation for Ultrasound in Medicine and Biology)  
Seoul, Korea  
28 May – 1 June 2006
275. **Pediatric Radiology Seminar “for Medical Students”**  
Course Moderator/Speaker  
Ohio University College of Medicine  
Athens, OH  
22 June, 2006
276. **Pediatric Hip Disease: Radiologic Pathologic Correlation**  
Course Moderator/Speaker  
Genesis HealthCare System/Bethesda Hospital  
Zanesville, OH  
2 August, 2006
276. **Premium Compact Ultrasound (WFUMB-Biology-New Technology Seminar)**  
Course Moderator/Speaker  
Zonare Worldwide Sales Meeting  
Mountain View, CA  
23 August, 2006
277. **New Interventional Radiology Techniques in the Treatment of Cystic Lesions of the Pediatric Head and Neck**  
Course Moderator-Speaker  
Midwest Society for Pediatric Radiology Fall Conference  
Minneapolis, MN  
15-17 September, 2006
278. **New Interventional Radiology Techniques in the Treatment of Cystic Lesions of the Pediatric Head and Neck**  
Course Moderator-Speaker  
The Ohio State University College of Medicine  
Department of Radiology Noon Conference  
10 October, 2006

279. **Unique Aspects of Pediatric Trauma: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
19 October, 2006
280. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
19 October, 2006
281. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
19 October, 2006
282. **Advanced Interventional Procedures**  
Course Moderator-Speaker  
BMUS (British Medical Ultrasound Society)  
Manchester International Convention Centre, England  
13 December, 2006
283. **Practical Concepts of Musculoskeletal Intervention in Children and Young Adults**  
Course Moderator-Speaker  
Practical Radiology at Whistler  
Chateau Whistler Resort  
Whistler, B.C., Canada  
4-9 February, 2007
284. **Pediatric Imaging**  
Course Moderator/Speaker  
College of Nursing, The Ohio State University College of Medicine  
Columbus, OH  
6 March, 2007
285. **Ultrasound Guided Breast Intervention "Hands-on Workshop"**  
Course Moderator/Speaker  
AOCR Mid-Year Conference  
Chicago, IL  
24-25 March, 2007
286. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
15 February, 2007
287. **Pediatric Interventions: The Gamut**  
Course Moderator-Speaker  
32<sup>nd</sup> SIR Annual Scientific Meeting  
Seattle, WA  
3 March, 2007

288. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
7 March, 2007
289. **Advanced Techniques of Interventional Sonography**  
Course Moderator/Speaker  
1<sup>st</sup> Annual Ohio Medical Ultrasound Society Meeting  
Columbus, OH  
30 March, 2007
290. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
17 April, 2007
291. **Pediatric Interventional Radiology...of Gifts...and Cures**  
Invited Speaker  
Circle of Care: North America Leadership Conference  
Boston, MA  
2-4 May, 2007
292. **Radiologic Management of Soft Tissue Foreign Bodies-Case Studies**  
Visiting Professor  
University of Kentucky  
Lexington, KY  
10-11 May, 2007
293. **Pediatric Neck Masses: Radiologic Diagnosis and Intervention**  
Visiting Professor  
University of Kentucky  
Lexington, KY  
10-11 May, 2007
294. **Pediatric Liver Tumors: Radiologic Pathologic Correlation**  
Visiting Professor  
University of Kentucky  
Lexington, KY  
10-11 May, 2007
295. **Percutaneous Treatment of Head and Neck Cystic Masses**  
Course Moderator/Speaker  
NWORS/UTMC  
Toledo, OH  
16 May, 2007
296. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
2 August, 2007

297. **Interventional: Tutorials and Applications**  
Course Moderator-Speaker  
Musculoskeletal Ultrasound Society 17<sup>th</sup> Annual Conference  
Paris, France  
25-28 August, 2007
298. **Interventional: Hands- On**  
Course Moderator-Speaker  
Musculoskeletal Ultrasound Society 17<sup>th</sup> Annual Conference  
Paris, France  
25-28 August, 2007
299. **Head and Neck Cystic Masses: New Minimally and Micro-Invasive Treatment Solutions**  
Course Moderator/Speaker  
Genesis HealthCare System/Bethesda Hospital – Grand Rounds  
Zanesville, OH  
22 August, 2007
300. **Percutaneous Treatment of Lymphatic Malformations**  
Course Moderator/Speaker  
AAO-HNS Annual Meeting – Washington Convention Center  
Washington, D.C.  
17 September, 2007
301. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
20 September, 2007
302. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
20 September, 2007
303. **Radiological Management of Pediatric Emergencies I: Head, Neck, Spine, & Extremities**  
Course Moderator/Speaker  
AOCR 2007 Annual Convention “Imaging in Trauma & Critical Care”  
Boca Raton, FL  
24-28 September, 2007
304. **Imaging & Management of Non-accidental Trauma: Clinical & Legal Implications**  
Course Moderator/Speaker  
AOCR 2007 Annual Convention “Imaging in Trauma & Critical Care”  
Boca Raton, FL  
24-28 September, 2007
305. **Radiological Management of Pediatric Emergencies II: Chest & Abdomen**  
Course Moderator/Speaker  
AOCR 2007 Annual Convention “Imaging in Trauma & Critical Care”  
Boca Raton, FL  
24-28 September, 2007

306. **Pediatric Liver Tumors: Radiologic-Pathologic Correlation**  
Visiting Professor  
Boston Children's Hospital  
Boston, MA  
1-2 October, 2007
307. **Techniques of Pediatric Invasive Sonography: A "hands-on" Course**  
Course Moderator/Speaker  
Boston Children's Hospital  
Boston, MA  
1-2 October, 2007
308. **Childhood Intussusception: Radiographic-Pathologic Correlation**  
Course Moderator/Speaker  
Boston Children's Hospital  
Boston, MA  
1-2 October, 2007
309. **Techniques of Freehand Invasive Sonography with Thermal Ablation (Hands-on Workshop) (US)**  
Course Moderator/Speaker  
RSNA 2007  
Chicago, IL  
30 November, 2007
310. **Small Parts Interventional Ultrasound (Hands-on Workshop)**  
Course Moderator/Speaker  
RSNA 2007  
Chicago, IL  
30 November, 2007
311. **Radiology Unknown Case Discussions**  
Course Moderator-Speaker  
Practical Radiology at Whistler  
Chateau Whistler Resort  
Whistler, B.C., Canada  
3-8 February, 2008
312. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
21 February, 2008
313. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
21 February, 2008
314. **Pediatric Interventional Radiology: Changing lives with precision**  
Course Moderator-Speaker  
NEOUS (Northeast Ohio Ultrasound Society)  
Cleveland, OH  
23 February, 2008



315. **Pediatric Head and Neck Masses: State of the art in Diagnosis and Intervention**  
Course Moderator-Speaker  
NEOUS (Northeast Ohio Ultrasound Society)  
Cleveland, OH  
23 February, 2008
316. **Pediatric Hip/Spine Sonography**  
2008 Pediatric Ultrasound Conference Itinerary  
Course Moderator/Speaker  
Riley Hospital  
Indianapolis, IN  
8 March, 2008
317. **Diagnosis and Intervention of Cystic Neck Masses**  
2008 Pediatric Ultrasound Conference Itinerary  
Course Moderator/Speaker  
Riley Hospital  
Indianapolis, IN  
8 March, 2008
318. **Pyloric Stenosis**  
2008 Pediatric Ultrasound Conference Itinerary  
Course Moderator/Speaker  
Riley Hospital  
Indianapolis, IN  
8 March, 2008
319. **Techniques of Freehand Interventional Sonography – “A Hands-on Workshop”**  
Course Moderator/Speaker  
AOCR Mid Year Conference  
Chicago, IL  
12-13 April, 2008
320. **Advanced Techniques of Interventional Sonography**  
Course Moderator/Speaker  
2<sup>nd</sup> Annual Ohio Medical Ultrasound Society Meeting  
Columbus, OH  
18 April, 2008
321. **Pediatric Head & Neck Masses: Interventional Radiological Management**  
Atis K. Freimanis Radiology Visiting Professor Program  
Michigan State University  
22 April, 2008
322. **Advanced Techniques of Interventional Sonography**  
Course Moderator/Speaker  
The Ohio Society of Radiologic Technologists (OSRT)  
Worthington, OH  
27 April, 2008
323. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
14 May, 2008

324. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
14 May, 2008
325. **Interventional Radiology – Surgery Without Scars**  
Keynote Speaker  
University of Cincinnati  
Cincinnati, OH  
15 May, 2008
326. **Interventional Radiology of the pediatric chest and abdomen**  
Visiting Professor  
Children's National Medical Center  
Washington, DC  
24-25 June, 2008
327. **Techniques of Invasive Sonography: A “hands-on” Course**  
Visiting Professor  
Children's National Medical Center  
Washington, DC  
24-25 June, 2008
328. **Pediatric Radiology Seminar “for Medical Students”**  
Course Moderator/Speaker  
Ohio University College of Medicine  
Athens, OH  
8 July, 2008
329. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
7 August, 2008
330. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
7 August, 2008
331. **Radiological Management of Common Pediatric Abdominal Emergencies**  
Course Moderator-Speaker  
AOCR Resident Distance Learning Series  
1 October, 2008
331. **Practical Pediatric Musculoskeletal Intervention**  
Visiting Professor  
Boston Children's Hospital  
Boston, MA  
6-7 October, 2008

332. **Techniques of Pediatric Invasive Sonography: A “Hands-on” Course**  
Course Moderator/Speaker  
Boston Children’s Hospital  
Boston, MA  
6-7 October, 2008
333. **Practical Pediatric Abdominal Intervention**  
Course Moderator/Speaker  
Boston Children’s Hospital  
Boston, MA  
6-7 October, 2008
334. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
14 October, 2008
335. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
14 October, 2008
336. **Techniques of Freehand Invasive Sonography with Thermal Ablation (Hands-on Workshop) (US)**  
Course Moderator/Speaker  
RSNA 2008  
Chicago, IL  
30 November, 2008
337. **Small Parts Interventional Ultrasound (Hands-on Workshop)**  
Course Moderator/Speaker  
RSNA 2008  
Chicago, IL  
30 November, 2008
338. **Small Parts Interventional Ultrasound (Hands-on Workshop)**  
Course Moderator/Speaker  
RSNA 2008  
Chicago, IL  
30 November, 2008
339. **Pediatric Peripherally Inserted Central Catheterization: How to Establish and Run the Service**  
Course Moderator/Speaker  
RSNA 2008  
Chicago, IL  
30 November, 2008
340. **Radiology Unknown Case Discussions**  
Course Moderator-Speaker  
Practical Radiology at Whistler  
Chateau Whistler Resort  
Whistler, B.C., Canada  
8-13 February, 2009

341. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
24 February, 2009
342. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
24 February, 2009
343. **Pediatric Series: A Practical Case-based Approach**  
Course Moderator-Speaker  
SIR 34<sup>th</sup> Annual Scientific Meeting  
San Diego, CA  
7-12 March, 2009
344. **Pediatric Series: Pediatric Vascular Procedures**  
Course Moderator-Speaker  
SIR 34<sup>th</sup> Annual Scientific Meeting  
San Diego, CA  
7-12 March, 2009
345. **Pediatric IR of the Abdomen**  
Visiting Professor  
Children's Hospital of Philadelphia (CHOP)  
Philadelphia, PA  
2-3 April, 2009
346. **Current Research Innovations in Pediatric Interventional Radiology**  
Visiting Professor  
Children's Hospital of Philadelphia (CHOP)  
Philadelphia, PA  
2-3 April, 2009
347. **Radiological Management of Soft Tissue Foreign Bodies head to toe**  
Visiting Professor  
Children's Hospital of Philadelphia (CHOP)  
Philadelphia, PA  
2-3 April, 2009
348. **Case Conference – Residents & Fellows**  
Visiting Professor  
CHOP  
Philadelphia, PA  
2-3 April, 2009
349. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
7 April, 2009

350. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
7 April, 2009
351. **Interventional Radiologic Management of Pediatric Head and Neck Masses**  
Visiting Professor  
UConn Health Center  
Hartford, CT  
8-9 April, 2009
352. **Pediatric Hip and Spine**  
Course Moderator/Speaker  
3<sup>rd</sup> Annual Ohio Medical Ultrasound Society Meeting  
Columbus, OH  
17 April, 2009
353. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
30 April, 2009
354. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
30 April, 2009
355. **Techniques of Invasive Sonography: A “Hands-on” Course”**  
Betty J. Wood Visiting Professor  
BC Children’s Hospital  
Vancouver, BC  
5-8 May, 2009
356. **Pediatric Head & Neck Masses: Interventional Radiological Management”**  
Betty J. Wood Visiting Professor  
BC Children’s Hospital  
Vancouver, BC  
5-8 May, 2009
357. **Pediatric Interventional Radiology**  
International Symposium on Pediatric Radiology  
Rio De Janeiro – Brazil  
23-25 July, 2009
358. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
30 July, 2009

359. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
30 July, 2009
360. **Percutaneous Ablation of Aneurysmal Bone Cysts: Targeted Therapy and Initial Results**  
Course Moderator-Speaker  
OSOLS/MSTS Conference  
Boston, MA  
22-24 September, 2009
361. **Radiological Treatment of Cystic Masses in Children's and Young Adults**  
Visiting Professor-Speaker  
Universitario 12 de Octubre  
Madrid, Spain  
28 September, 2009
362. **Radiological Treatment of Cystic Masses in Children's and Young Adults**  
Course Moderator-Speaker  
Vall d'Hebrón Children's Hospital  
Barcelona, Spain  
30 September, 2009
363. **Hip Interventional MUS "Interventional techniques guided by Ultrasound**  
Course Moderator-Speaker  
MUSOC  
Barcelona, Spain  
3 October, 2009
364. **Ultrasound Guided Procedures "Ultrasound Guided Procedures"**  
Course Moderator-Speaker  
MUSOC  
Barcelona, Spain  
3 October, 2009
365. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
17 October, 2009
366. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
17 October, 2009
367. **Sonographic Interventional Emergencies**  
Course Moderator/Speaker  
American Society of Radiologists (SRU)  
Chicago, IL  
1 November, 2009

368. **Techniques of Freehand Invasive US with Thermal Ablation (Hands-on Workshop)**  
Course Moderator-Speaker  
RSNA 95<sup>th</sup> Scientific Assembly & Annual Meeting  
Chicago, IL  
29 November, 2009
369. **Small Parts Interventional US (Hands-on Workshop)**  
Course Moderator-Speaker  
RSNA 95<sup>th</sup> Scientific Assembly & Annual Meeting  
Chicago, IL  
1 December, 2009 and 3 December, 2009
370. **Pediatric Chest Radiography for the Primary Care Physician**  
Course Moderator/Speaker  
Riverside Family Practice Center  
Columbus, OH  
16 December, 2009
371. **Fantastic New Interventions**  
Course Moderator-Speaker  
Practical Radiology at Whistler  
Chateau Whistler Resort  
Whistler, B.C., Canada  
1 January-5 February, 2010
372. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
18 February, 2010
373. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
18 February, 2010
374. **Techniques of Freehand Interventional Breast Sonography: "A Hands-on Workshop"**  
Course Moderator/Speaker  
AOCR Mid-Year Conference  
Dallas, TX  
20-21 March, 2010
375. **Ultrasound Guided Breast Intervention – "A Hands-on Workshop"**  
Course Moderator/Speaker  
AOCR Mid-Year Conference  
Dallas, TX  
20-21 March, 2010
376. **Sonographic Care In Pyloric Stenosis**  
Course Moderator/Speaker  
MSDU 30<sup>th</sup> Annual Spring Seminar  
Brooklyn Park, MN  
26-28 March, 2010

377.     **Emergency Interventional Sonographic Procedures**  
Course Moderator/Speaker  
MSDU 30<sup>th</sup> Annual Spring Seminar  
Brooklyn Park, MN  
26-28 March, 2010
378.     **Challenges and Opportunities for Healthcare in the Future**  
Invited Speaker  
Alpha Epsilon Delta Initiation  
Ohio Gamma Chapter  
Otterbein College  
16 May, 2010
379.     **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
20 May, 2010
380.     **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
20 May, 2010
381.     **New Roles for Interventional Radiology**  
Grand Rounds  
Eye & Pediatric Otolaryngology Grand Rounds for Community Physicians  
OSU Eye and Ear Institute at The Ohio State College of Medicine  
Columbus, OH  
22 May, 2010
382.     **Salivary Gland Ablation**  
Invited Speaker  
Aicardi Syndrome Family Conference  
Bloomington, IL  
10 July, 2010
382.     **Hip Interventional MUS “Interventional techniques guided by Ultrasound**  
Course Moderator-Speaker  
MUSOC  
Cancun, Mexico  
21-24 July, 2010
383.     **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
29 July, 2010
384.     **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
29 July, 2010



385. **Pediatric Radiology Case Review**  
Course Moderator-Speaker  
Family Practice Residency Program  
Doctor's West  
Columbus, OH  
15 September, 2010
386. **Diagnostic & Therapeutic Pediatric MSK Interventions**  
Course Moderator-Speaker  
Boston Children's Hospital  
Boston, MA  
20-21 September, 2010
387. **Techniques of Pediatric Invasive Sonography: A "Hands-on" Course**  
Course Moderator-Speaker  
Boston Children's Hospital  
Boston, MA  
20-21 September, 2010
388. **Pediatric Head and Neck Masses: State of the Art Diagnosis and Intervention**  
Visiting Professor  
Daughters Medical Center  
Ashland, Ky  
24 September, 2010
389. **Radiologic Placement and Management of Cecostomy Catheters**  
CIRSE  
Course Moderator-Speaker  
Valencia, Spain  
2-6 October, 2010
390. **New Care Solutions for Treatment of Lymphatic Malformations**  
CIRSE  
Course Moderator-Speaker  
Valencia, Spain  
2-6 October, 2010
391. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
14 October, 2010
392. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AFIP)  
Washington, DC  
14 October, 2010
393. **Sonography of the Pediatric Hip and Spine**  
Course Moderator-Speaker  
SDMS Annual Conference  
Hyatt Regency Denver/Colorado Convention Center  
Denver, CO  
14-17 October, 2010

394. **Advances in Pediatric Therapeutic Interventional Sonography**  
Course Moderator-Speaker  
SDMS Annual Conference  
Hyatt Regency Denver/Colorado Convention Center  
Denver, CO  
14-17 October, 2010
395. **Advances in Radiological Treatment of Head & Neck Masses**  
Visiting Professor  
Michigan State University  
Grand Rapids, MI  
5 November, 2010
396. **Techniques for Interventional Sonography and Thermal Ablation (Hands-on Workshop)**  
Course Moderator-Speaker  
RSNA 95<sup>th</sup> Scientific Assembly & Annual Meeting  
Chicago, IL  
28 November, 2010
397. **Small Parts Interventional Ultrasound (Hands-on Workshop)**  
Course Moderator-Speaker  
RSNA 95<sup>th</sup> Scientific Assembly & Annual Meeting  
Chicago, IL  
30 November, 2010 & 2 December, 2010
398. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AIRP)  
Washington, DC  
10 February, 2011
399. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AIRP)  
Washington, DC  
10 February, 2011
400. **Pediatric Interventional Radiology: Changing lives with precision**  
Course Moderator-Speaker  
NEOUS (Northeast Ohio Ultrasound Society)  
Cleveland, OH  
19 February, 2011
401. **Advances in Radiological Treatment of Head & Neck Masses**  
Course Moderator-Speaker  
NEOUS (Northeast Ohio Ultrasound Society)  
Cleveland, OH  
19 February, 2011
402. **Chest, GI, GU, & Neuro**  
Course Moderator-Speaker  
OSU College of Nursing  
Columbus, OH  
22 February, 2011

403. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AIRP)  
Washington, DC  
17 March, 2011
404. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AIRP)  
Washington, DC  
17 March, 2011
405. **Advanced Techniques of Interventional Ultrasound**  
Course Moderator/Speaker  
5<sup>th</sup> Annual Ohio Medical Ultrasound Society Meeting  
Columbus, OH  
8 April, 2011
406. **Percutaneous Biopsy and Treatment of Aneurysmal Bone Cysts**  
Course Moderator/Speaker  
AOCR Annual Conference  
Palm Beach, FL  
11-15 April, 2011
407. **Interventional Radiology Treatment of Benign Head and Neck Masses**  
Course Moderator/Speaker  
AOCR Annual Conference  
Palm Beach, FL  
11-15 April, 2011
408. **Interventional Radiology**  
Course Moderator/Speaker  
2011 Annual Pediatric Infectious Disease Nurses Conference  
Columbus, OH  
15 April, 2011
408. **General Techniques and Foreign Body Removal**  
Course Moderator/Speaker  
AIUM Annual Convention  
New York, New York  
17 April, 2011
409. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AIRP)  
Washington, DC  
5 May, 2011
410. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AIRP)  
Washington, DC  
5 May, 2011

411. **Pediatric Radiology in Acute Abdominal Emergencies**  
Course Moderator-Speaker  
Pediatric Spring Symposium:  
Sowing the Seeds of Scholarship  
St. Rita's Medical Center Auxiliary Conference Center  
Lima, OH  
7 May, 2011
412. **Pediatric Liver Tumors: Radiologic/Pathologic Correlation**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AIRP)  
Washington, DC  
28 July, 2011
413. **Pediatric Hip Sonography: Dynamic Pathology and Intervention**  
Course Moderator-Speaker  
Armed Forces Institute of Pathology (AIRP)  
Washington, DC  
28 July, 2011
414. **Interventional Radiology-Respiratory Therapy Coorelations-Pioneering Techniques in OH**  
Course Moderator-Speaker  
Ohio Society for Respiratory Care – 33<sup>rd</sup> Annual State Meeting  
Columbus, OH  
16 August, 2011
415. **Musculoskeletal Interventional Techniques Guided by Ultrasound**  
Course Moderator-Speaker  
MUSoc 2011  
Rio de Janeiro, Brazil  
4-7 September, 2011
416. **Ultrasound Guided Management of Embedded Foreign Bodies**  
Course Moderator-Speaker  
MUSoc 2011  
Rio de Janeiro, Brazil  
4-7 September, 2011
415. **Pediatric Musculoskeletal Invasive Sonography: New Opportunities for Care**  
Course Moderator-Speaker  
Central Ohio Ultrasound Society Meeting  
Newark, OH  
10 September, 2011

#### **INVENTIONS/PATENTS:**

##### **Shiels Intussusception Air Reduction System**

1988

U.S. Patent Number 5,061,239

##### **Cincinnati Standoff**

Acoustic Standoff Pad

1989

Cincinnati, OH

## **NEW TECHNIQUES:**

### **Sonographically Guided Foreign Body Removal**

1989

Cincinnati, OH

### **Valsalva-Assisted Air Intussusception Reduction**

1989

Cincinnati, OH

## **PUBLICATIONS:**

1. Wasserman AJ, Shiels WS, Sporn IN. Cerebral mucormycosis. South Med J 1961/ Apr 54:403-10
2. Johnson JF, Lehman RM, Shiels WE, Blaney SM. Osteolysis in cat-scratch fever. Radiology 1985; Aug; 156(2):373-4
3. Johnson JF, Shiels WE II. Ileocolic intussusception: Hydrostatic reduction in the presence of the dissection sign. Pediatr Radiol 1986; 16(6) 514-515.
4. Johnson JF, Shiels WE II, White CB, Williams BD. The concealed pulmonary abscess: Diagnosis by computed tomography. Pediatrics 1986; 78(2):283-286.
5. Shiels WE II, Dueno F, Hernandez E. Ovarian dermoid cyst complicated by an entero-ovarian fistula. Radiology 1986; 160(2):443-444.
6. Al-Kawas FH, Murgo A, Foshag L, Shiels W. Lymphadenopathy in celiac disease: not always a sign of lymphoma. Am J Gastroenterol. 1988; Mar;83(3):301-3.
7. Shiels WE II, Johnson JF, Stephenson SR, Huang YC. Chronic torsion of the wandering spleen. Pediatr Radiol 1989; 19(6-7):465-467.
8. Shiels WE II, Bisset GS III, Kirks DR. Simple device for air reduction of intussusception. Pediatr Radiol 1990; 20(6):472-474.

## **Curriculum Vitae / William E. Shiels II, D. O.**

**61**

9. Shiels WE II, Babcock DS, Wilson JL, Burch RA. Localization and guided removal of soft-tissue foreign bodies with sonography. AJR 1990; 155(6):1277-128.
10. Shiels WE II, Maves CK, Hedlund GL, Kirks DR. Air enema for diagnosis and reduction of intussusception: Clinical experience and pressure correlates. Radiology 1991; Oct;181(1): 169-172.
11. Shiels WE II, Maves CK, Hedlund GL, Kirks DR. Air enema for diagnosis and reduction of intussusception: Clinical experience and pressure correlates. Year Book Of Diagnostic Radiology, 1993.
12. Shiels WE II, Dirks DR, Keller GL, Ryckman FR, Daugherty CC, Specker BL, Summa DW. John Caffey Award. Colonic perforation by air and liquid enemas: Comparison study in young pigs. AJR 1993; May 160(5): 931-935.
13. Shiels WE II: Childhood Intussusception: Techniques of Diagnosis and Therapy: RSNA Video Today Journal of Imaging Science 1993: Vol 7; No 4

14. Shiels WE II. Handling of the acutely ill or injured child. Emergency Pediatric Radiology: A Problem-Oriented Approach (American Roentgen Ray Society), April 1995.
15. Shiels WE II. Childhood intussusception: Management perspectives in 1995. Journal of Pediatric Gastroenterology and Nutrition, 1995; Jul;21(1):15-17.
16. Shiels WE II. Military Radiology: Opportunities in a diverse radiological healthcare system. Academic Radiology , 1995; Jun;2(6):544-546.
17. Shiels WE II. Intracolonic pressure and enemas in children: Form follows function. Radiology 1995; 196: 19-21.
18. Georgian-Smith D, Shiels WE II. Freehand Interventional Sonography in the Breast: basic principles and clinical applications (From the RSNA Refresher courses). Radiographics. 1996 Jan;16(1):149-61.
19. Bramson RT, Shiels WE II, Eskey C, Hu S. Intraluminal colon pressure dynamics with Valsalva maneuver during air enema. Radiology, 1997; Mar;202(3): 825-828.
20. Shiels WE II. Childhood Intussusception: Management Perspective in 1995; What to do if it is Recurrent. Authors Reply. J Pediatr Gastroenterol Nutr, 1997; 25: 117-118.
21. Shiels WE II. Childhood intussusception: Diagnostic and therapeutic directions. Pediatric Directions, 1997;7(2): 2-5.
22. Shiels WE II. Childhood Intussusception: Options in treatment systems. Authors Reply. J Pediatr Gastroenterol Nutr, 1997; 25: 119.
23. Georgian-Smith D, Lyon RD, Schwartzberg BS, Shiels WE II. A Smorgasbord of Interventional Phantoms. Seminars in Interventional Radiology: 1997; 14:4
24. Shiels, WE. II, Invasive Sonography: Principles, Applications, and Learning Systems. Postgraduate Course: Emergency Radiology in Childhood, European Society of Pediatric Radiology, Springer-Verlag, Berlin Heidelberg New York, 1998: 33-45.
25. Shiels, WE. II Soft Tissue Foreign Bodies: Diagnostic and Therapeutic Radiological Management. Postgraduate Course: Emergency Radiology in Childhood, European Society of Pediatric Radiology, Springer-Verlag, Berlin Heidelberg, New York, 1998: 46-55.
26. Shiels, WE. II, Hogan, MJ. Emergency Interventional Radiology in the Pediatric Chest and Abdomen. Postgraduate Course: Emergency Radiology in Childhood, European Society of Pediatric Radiology, Springer-Verlag, Berlin Heidelberg New York, 1998: 56-69.
27. Hogan, MJ. Coley, BD. Shiels, WE II. Allen, ED. McCoy, KS. Recurrent deep venous thrombosis complicating PICC line placement in two patients with cystic fibrosis and activated protein C-resistance, Pediatr Radiol (1998), Springer-Verlag, Berlin Heidelberg, New York, 1998, Jul;28(7):552-553.
28. Knight D, Franklin WH, Cohen DE, Davis, JT, Shiels, WE II, Long, FA, Allen HD. Case studies of cycle exercise early after Cardiothoracic surgery. J Cardiopulmonary Rehabil 1999; May-Jun;19(3):186-9
29. Shiels II WE. Childhood intussusception: radiological mission, goals and strategies. Jnl of the Hong Kong College of Radiologists 1999; 2(4):359-362
30. Vegunta R, Morotti RA, Shiels WE II, Rauck A, Besner G, Collision Tumors in Children: A Review of the Literature and Presentation of a Rare Case of Mesoblastic Nephroma and Neuroblastoma in an Infant. Jnl of Pediatric Surgery, 2000 Sep;35(9):1359-1361

31. Wiet G, Long F, Shiels WE II, Rudman D: Advances in Pediatric Airway Radiology. The Otolaryngologic Clinics of North America, Feb. 2000 Vol. 33:1(15-28)
32. Coley BD, Mutabagani KH, Martin LC, Zumberge N, Cooney DR, Caniano DA, Besner GE, Groner JI, Shiels WE II. Focused abdominal sonography for trauma (FAST) in children with blunt abdominal trauma. J Trauma. 2000 May;48(5):902-6
33. Boswell HB, Dietrich A, Shiels WE II, King D, Ginn-Pease M, Bowman MJ, Cotton WH: The Accuracy of Visual Determination of Neutral Position of the Immobilized Pediatric Cervical Spine. Pediatr Emerg Care. 2001 Feb;17(1):10-4
34. Hogan M, Coley B, Jayanthi V, Shiels WE II, Koff S: Percutaneous Nephrostomy in Children and Adolescents: Outpatient Management<sup>1</sup>. Radiology 2001; Jan;218(1):207-210
35. Coley BD, Shiels WE II, Hogan MJ: Diagnostic and interventional ultrasonography in neonatal and infant lumbar puncture. Pediatr Radiol. 2001 June;31(6):399-402
36. Coley BD, Murakami JW, Koch BL, Shiels WE II, Bates DG, Hogan MJ: Diagnostic and interventional ultrasound of the pediatric spine. Pediatr Radiol (2001) Nov;31(11):775-85
37. Rudman D, Elmaraghy C, Shiels WE II, Wiet G: The Role of Airway Fluoroscopy in the Evaluation of Stridor in Children: Arch Otolaryngol Head Neck Surg. 2003; Mar;129(3):305-9
38. Jones GP, Seguin J, Shiels WE II: Salter-Harris II Fracture of the Proximal Humerus in a Preterm Infant. Am J Perinatol. 2003 Jul;20(5):249-53
39. Coley BD, Shiels WE II, Elton, S, Murakami JW, Hogan MJ: Sonographically Guided Aspiration of Cerebrospinal Fluid Pseudocysts in Children and Adolescents – AJR 2004; Nov;183(5):1507-10
40. Shiels WE II; The confidence to manage. Interview by Lynne Pearce. Nurs Stand. 2004 May 26-June 1;18(37):14-5
41. Druhan SM, Shiels WE II, Kang DR, Elton SW, Koranyi KI: Successful Ultrasound Guided Drainage of Epidural Abscess - AJR: 2006 Nov;187(5):W512-4.
42. Rocourt DV, Shiels II WE, Hammond S, Besner GE: Contemporary management of benign hepatic adenoma using percutaneous radiofrequency ablation – J Pediatr Surg. 2006 Jun;41(6):1149-52
43. Golden, RP, Shiels WE II, Cahill KV, Rogers GL: Percutaneous Drainage and Ablation of Orbital Dermoids. J AAPOS 2007 Oct; 11(5):438-42. Epub 2007 Jul 27.
44. Young AS, Nicol KK, Teich S, Shiels II WE: Catheter-Based Drainage and Agitation for Definitive Cytological Diagnosis of a Ciliated Hepatic Foregut Cyst in a Child – Pediatric and Developmental Pathology – Pediatric and Developmental Pathology 10, 153-156, 2007
45. Short RE, Shiels II WE, Sferra TJ, Nicol KK, Schofield M, Wiet GJ: Site-specific induction of lymphatic malformations in a rat model for image-guided therapy – Pediatr Radiol (2007) 37(6):530-4
46. Shiels II WE, Coley BD, Kean J, Adler BH: Focused Dynamic Sonographic Examination of the Congenital Clubfoot – Pediatr Radiol 2007 Nov; 37(11):1118-24. Epub 2007 Sep 4.
47. Coley BD, Shiels II WE, Kean, J, Adler BH: Age-dependent dynamic sonographic measurement of pediatric clubfoot. Pediatr Radiol. 2007 Nov; 37(11): 1125-9 Epub 2007 Sep 11.
48. Shiels II WE: Soft Tissue Foreign Bodies: Sonographic Diagnosis and Therapeutic Management – Ultrasound Clinics. October 2007. Vol. 2, Issue 2, 669-81.

49. Shiels II WE, Kenney BD, Caniano DA, Besner GE: Definitive percutaneous treatment of lymphatic malformations of the trunk and extremities. *J Pediatr Surg*. 2008 Jan;43(1): 136-9; discussion 140.
50. Close JK, Shiels WE II, Foster JA, Powell DA: Percutaneous ultrasound-guided intraorbital foreign body removal. *Ophthal Plast Reconstr Surg*. 2009 Jul-Aug;25(4):335-7.
51. Shiels II WE, Kang DR, Murakami JW, Hogan MJ, Wiet G: Percutaneous Treatment of Lymphatic Malformations. *Otolaryngol Head Neck Surg*. 2009 Aug;141(2):219-24.
52. Shiels II: Pediatric teleradiology outsourcing: downside considerations. *Pediatr Radiology* (2010) 40:1349-1352
53. Young AS, Shiels II WE, Murakami JW, Coley BD, Hogan MJ: Self-embedding Behavior: Radiologic Management of Self-inserted Soft-Tissue Foreign Bodies, *Radiology* 2010 October; 257(1): 233-239
54. Bennett GH, Shiels II WE, Young AS, Lofthouse N, Mihalov L: Self-Embedding Behavior: A New Primary Care Challenge. *Pediatrics* 2011 May 9; DOI: 10.1542/peds.2010-2877

## **BOOK CHAPTERS**

1. Shiels II WE. Pediatric Liver Tumors: Radiologic/Pathologic Correlation - Radiologic Pathology 1<sup>st</sup> Edition 2002; 1013
2. Shiels II WE. Pediatric Liver Tumors and Pediatric Hip Sonography: Radiologic/Pathologic Correlation – Radiology Pathology 2<sup>nd</sup> Edition 2003
3. Shiels II WE. Pediatric Liver Tumors: Radiologic/Pathologic Correlation – Radiology Pathology 2<sup>nd</sup> Edition 2004
4. Shiels II WE. Pediatric Hip Sonography: Radiologic/Pathologic Correlation – Radiology Pathology 2<sup>nd</sup> Edition 2004
5. Shiels WE II, Brown SD. Radiofrequency Tumor Ablation in Children – Tumor Ablation Principles and Practice, Springer 2005
6. Shiels WE II. Pediatric Liver Tumors: Radiologic/Pathologic Correlation – Radiology Pathology 6<sup>th</sup> Edition 2007/8
7. Shiels II WE. Pediatric Hip Sonography: Radiologic/Pathologic Correlation – Radiology Pathology 6<sup>th</sup> Edition 2007/8
8. Shiels WE II, Bates DG, Hogan, MJ. Radiology of the Postoperative Patient – Reoperative Pediatric Surgery; Springer 1<sup>st</sup> Edition; March, 2008
9. Shiels WE II. Pediatric Liver Tumors: Radiologic/Pathologic Correlation – Radiology Pathology 7<sup>th</sup> Edition 2008/9
10. Shiels II WE. Pediatric Hip Sonography: Radiologic/Pathologic Correlation – Radiology Pathology 7<sup>th</sup> Edition 2009/10
11. Shiels WE II. Pediatric Liver Tumors: Radiologic/Pathologic Correlation – Radiology Pathology 8<sup>th</sup> Edition 2008/9
12. Shiels II WE. Pediatric Hip Sonography: Radiologic/Pathologic Correlation – Radiology Pathology 8<sup>th</sup> Edition 2009/10
13. Johnson NE, Shiels WE II. Pediatric Interventional: Diagnostic Ultrasound 4<sup>th</sup> Edition 2011



## **PRESENTATIONS:**

### **Ovarian Dermoid Cyst Complicated by an Entero-ovarian Fistula**

OB-GYN Armed Forces Seminar, New Orleans, LA, October, 1985

### **Chronic Torsion of the Wandering Spleen**

Pediatric Radiology Symposium, Cincinnati, OH, January 24-25, 1987

### **A Simple Device for Air Reduction of Intussusception**

The Society for Pediatric Radiology, San Antonio, TX, April 5-9, 1989

### **Sonographic Localization and Guided Removal of Soft Tissue Foreign Bodies**

The Society for Pediatric Radiology, San Antonio, TX, April 5-9, 1989

### **Sonographic Localization and Guided Removal of Soft Tissue Foreign Bodies**

The Benjamin Felson Annual Lecture Series, University of Cincinnati College of Medicine, Cincinnati, OH, April 15-16, 1989

### **A Simple Device for Air Reduction of Intussusception**

Ohio State Radiological Society, Cincinnati, OH, April 28-30, 1989

### **Practical Models for Invasive and Non-invasive Sonography Training**

Radiological Society of North America, Chicago, IL, November 26 - December 1, 1989

### **Hepatic Veno-occlusive Disease: Sonographic Findings with Pathologic Correlation**

The Society for Pediatric Radiology, Cincinnati, OH, April 19-22, 1990

### **Juvenile Colonic Perforation: Histologic Correlates**

The Association of University Radiologists, Orlando FL, March 17-21, 1991

### **Juvenile Colonic Perforation: Experimental Results and Clinical Applications**

International Pediatric Radiology '91, Stockholm, Sweden, May 27-31, 1991

### **Abdominal Radiographic Evaluations of Childhood Intussusception**

The Society for Gastrointestinal Radiology, Orlando, FL, February 16-21, 1992

### **Valsalva Maneuver During Air Reduction of Intussusception**

The Society for Pediatric Radiology, Orlando, FL, May 14-17, 1992

### **The Shields Device: An Experience in Technology Development**

Pediatric Imaging Research Conference, Phoenix, AZ January 13-15, 1995

### **Childhood Intussusception: Focused Improvements with Better Clinical Outcomes**

The Society For Pediatric Radiology, Washington, DC, April 26-30, 1995

### **Handling of the Acutely Ill or Injured Child**

American Roentgen Ray Society, Washington, DC, April 30- May 5, 1995

### **Interventional Breast Ultrasound Learning System**

Breast Imaging and Percutaneous Intervention Conference, Washington, D.C. September 10-12, 1995

### **Juvenile Colonic Perforation in the Porcine Model: Relative Risk in the Neonate.**

International Pediatric Radiology '96 26-30 May, 1996

**Outpatient Management of Childhood Intussusception: Initial Results and Strategic Partnerships**  
The Society for Pediatric Radiology, St. Louis, MO, 15-18 May, 1997

**Invasive Sonography: Principles, Applications, and Learning Systems**  
European Society of Pediatric Radiology, Post-graduate Course, Rhodes, Greece 18-19 May, 1998

**Soft Tissue Foreign Bodies: Diagnostic and Therapeutic Radiological Management**  
European Society of Pediatric Radiology, Post-graduate Course, Rhodes, Greece 18-19 May, 1998

**Emergency Interventional Radiology in the Pediatric Chest and Abdomen**  
European Society of Pediatric Radiology, Post-Graduate Course, Rhodes, Greece 18-19 May, 1998

**Dynamic Sonographic Examination of the Congenital Clubfoot**  
American Institute of Ultrasound in Medicine, 44<sup>th</sup> Annual Convention, San Francisco, CA 2-5 April, 2000

**Soft-Tissue Foreign Bodies: Sonographic diagnosis and guided-intervention**  
American Institute of Ultrasound in Medicine, 44<sup>th</sup> Annual Convention, San Francisco, CA 2-5 April, 2000

**Advances in Pediatric Airway Radiology**  
Wiet GJ, Shiels WE II, Long FR, Rudman DT  
American Society of Pediatric Otolaryngology Annual Meeting, Orlando, FL, May, 2000

**Soft-Tissue Foreign Bodies: Sonographic diagnosis and guided-intervention**  
Society for Pediatric Radiology 43<sup>rd</sup> Annual Meeting, Naples, FL 29 April – 3 May, 2000

**Dynamic Sonographic Examination of the Congenital Clubfoot**  
Society for Pediatric Radiology 43<sup>rd</sup> Annual Meeting, Naples, FL 29 April – 3 May, 2000

**Radiology: A Case-based Assessment**  
OMEN/OMEN-TV, The Ohio State University Medical Center, Columbus, OH February 13-15, 2001

**Radiology: Interventional Radiology Updates**  
OMEN/OMEN-TV, The Ohio State University Medical Center, Columbus, OH January 29-February 1, 2002

**Focused Sclerotherapy of Macrocystic Lymphatic Malformations**  
Society for Pediatric Radiology 2003 Annual Meeting, San Francisco, CA May 7-10, 2003

**Ultrasound Guided Aspiration in the Management of Patients with Cerebrospinal Fluid Pseudocysts**  
Society for Pediatric Radiology 2003 Annual Meeting, San Francisco, CA May 7-10, 2003

**Current Practices in Diagnostic Pediatric Radiology**  
Iraqi Medical Specialty Forum, Baghdad, Iraq 12-19 February, 2004

**Current Practices in Pediatric Interventional Radiology**  
Iraqi Medical Specialty Forum, Baghdad, Iraq 12-19 February, 2004

**Current Practices in Pediatric Emergency Radiology**  
Iraqi Medical Specialty Forum, Baghdad, Iraq 12-19 February, 2004

**A Novel Method of Widespread Metastatic Rhabdomyosarcoma Induction in a Small Animal Model**  
Society for Pediatric Radiology 2004 Annual Meeting, Savannah, GA April 28-May 1, 2004

**Coaxial Catheter System for Contained Sclerotherapy of Small Cystic Masses in Children**  
Society for Pediatric Radiology 2004 Annual Meeting, Savannah, GA April 28-May 1, 2004

**Plunging Ranula: Successful Treatment with Percutaneous Sclerotherapy and Regional Ethanol Ablation**

Society for Pediatric Radiology 2004 Annual Meeting, Savannah, GA April 28-May 1, 2004

**“Semi-upright US-guided lumbar puncture in infants”**

Society for Pediatric Radiology 2004 Annual Meeting, Savannah, GA April 28-May 1, 2004

**Site-Specific Induction of Lymphatic Malformations in a Rat Model for Imaging**

Society for Pediatric Radiology 2004 Annual Meeting, Savannah, GA April 28-May 1, 2004

**Coaxial Catheter System for Contained Sclerotherapy of Small Cystic Masses in Children**

American Institute of Ultrasound in Medicine 2004 Annual Meeting, Phoenix, AZ June 20-22, 2004

**Healing Wounds on the Tigris: Efforts of Reconstruction of Medicine in Iraq**

American College of Radiology 2005 Annual Meeting, Washington, D. C. April 9-14, 2005

**Percutaneous Treatment of Intraorbital Cystic Masses in Children**

European Society of Pediatric Radiology, Post-Graduate Course, Dublin, Ireland 28 May- 4 June, 2005

**Successful Percutaneous Emulsification, Drainage and Ablation of Head & Neck Dermoid Cysts**

European Society of Pediatric Radiology, Post-Graduate Course, Dublin, Ireland 28 May- 4 June, 2005

**Sonography of Soft Tissue Foreign Bodies: Diagnostic and Operative Correlation of the Hypoechoic Halo**

European Society of Pediatric Radiology, Post-Graduate Course, Dublin, Ireland 28 May- 4 June, 2005

**Soft Tissue Foreign Body Removal: Correlation of Blunt vs Sharp Dissection Requirements for Removal**

European Society of Pediatric Radiology, Post-Graduate Course, Dublin, Ireland 28 May- 4 June, 2005

**Percutaneous Interventional Sonography of the Orbit**

MSUS-WFUMB (World Federation for Ultrasound in Medicine and Biology), Seoul, Korea  
28 May – 1 June 2006

**Head & Neck Masses: “Extra Cranial”**

The Ohio State University College of Medicine, Plastic Surgery Lecture, Columbus, OH 21 November, 2005

**Musculoskeletal Interventional Radiology “Techniques & Applications”**

American Institute of Ultrasound in Medicine 2006 Annual Meeting, Washington, D.C. 24-25 March, 2006

**Hands-on Workshop: Interventional Musculoskeletal Ultrasound**

American Institute of Ultrasound in Medicine 2006 Annual Meeting, Washington, D.C. 24-25 March, 2006

**Percutaneous Therapy for Head and Neck Cystic Masses**

WFUMB (World Federation for Ultrasound in Medicine and Biology), Seoul, Korea, 28 May – 1 June 2006

**Percutaneous Interventional Sonography of the Orbit**

WFUMB (World Federation for Ultrasound in Medicine and Biology), Seoul, Korea, 28 May – 1 June 2006

**Percutaneous Therapy for Head and Neck Cystic Masses**

WFUMB (World Federation for Ultrasound in Medicine and Biology), Seoul, Korea, 28 May – 1 June 2006

**Percutaneous Treatment of Cystic Masses of the Head and Neck**

Society for Pediatric Radiology 2007 Annual Meeting, Miami, FL April 18-21, 2007

**“Destressing” the Workplace**

Society for Pediatric Radiology 2007 Annual Meeting, Miami, FL April 18-21, 2007

**Definitive Percutaneous Treatment of Lymphatic Malformations of the Trunk and Extremities**

APSA 38<sup>th</sup> Annual Meeting, Orlando Grand Lakes, FL, 24-27 May, 2007

**Pediatric IR Radiology: Changing Lives with Precision and Innovation**

Dublin Rotary, Dublin, OH 6 June, 2008

**Self Mutilation in Children**

RSNA 2008, Chicago, IL, 30 November-5 December, 2008

**Pediatric IR Radiology: Changing Lives with Precision and Innovation**

with Dr. Villanueva, Dublin Rotary, Dublin, OH, 20 February, 2009

**Dynamic Sonography of Aneurysmal Bone Cysts**

Society for Pediatric Radiology 2009 Annual Meeting, San Diego, CA 21-25 April, 2009

**Pediatric IR Radiology: Changing Lives with Precision and Innovation**

District Rotary Meeting, Lancaster, OH 15 May, 2009

**Targeted Image-guided Percutaneous Biopsy of Aneurysmal Bone Cysts**

RSNA 95<sup>th</sup> Scientific Assembly & Annual Meeting, Chicago, IL 3 December, 2009

**Pediatric Head & Neck Masses: Interventional Radiological Management**

EENT Society Dinner Meeting, Columbus, OH 2 February, 2010

**Innovative Approach to Treat Lymphatic Malformations**

**Pediatric Series: A Practical Case-based Approach**

SIR 35<sup>th</sup> Annual Scientific Meeting, Tampa, FL, 13-18 March, 2010

**Pediatric Interventional Radiology Practice: How To Successfully Negotiate for Equipment**

SPR Annual Meeting, Boston, MA, 14-17 April, 2010

**Pediatric IR Radiology: Changing Lives with Precision and Innovation**

District Rotary Meeting, Athens, OH May 15, 2010

**Percutaneous Image-guided Soft Tissue Foreign Body Removal: A 15 Year Experience**

RSNA 96<sup>th</sup> Scientific Assembly & Annual Meeting, Chicago, IL 1<sup>st</sup> December, 2010

**Definitive Percutaneous Treatment of Simple and Plunging Ranula**

RSNA 96<sup>th</sup> Scientific Assembly & Annual Meeting, Chicago, IL 1<sup>st</sup> December, 2010

**Percutaneous Treatment of Microcystic Lymphatic Malformation**

RSNA 96<sup>th</sup> Scientific Assembly & Annual Meeting, Chicago, IL 1<sup>st</sup> December, 2010

**New Roles for Interventional Radiology in Oral and Dental Pathology**

The Columbus Dental Society Meeting, Columbus, OH 25 January, 2011

**Interventional Radiology of the Head, Neck, and Orbit**

EENT Society Dinner Meeting, Columbus, OH 7 February, 2011

**Bleomycin Protein Microfoam: Stability and Clinical Applications**

SIR 36<sup>th</sup> Annual Scientific Meeting, Chicago, IL, 26-31 March, 2011

**Gelatin Foam Embolization of Large Gauge Needle Osteotomies During Ablation of Aneurysmal Bone Cysts**

SIR 36<sup>th</sup> Annual Scientific Meeting, Chicago, IL, 26-31 March, 2011

**Joint Injection Under US Guidance Workshop**

IPR 2011 – 6<sup>th</sup> Congress and Exhibition of the Joint Societies of Paediatric Radiology, 29 May, 2011  
London England

**Joint Injection Under US Guidance Workshop**

IPR 2011 – 6<sup>th</sup> Congress and Exhibition of the Joint Societies of Paediatric Radiology, 30 May, 2011  
London England

**Direct Tumoral Therapy of Aneurysmal Bone Cysts in Children's**

IPR 2011 – 6<sup>th</sup> Congress and Exhibition of the Joint Societies of Paediatric Radiology, 31 May, 2011  
London England

**Pediatric IR Radiology: Changing Lives with Precision and Innovation**

Dublin Rotary Meeting, Dublin, OH October 29, 2010

**Pediatric IR Radiology: Changing Lives with Precision and Innovation  
Presentation with Dr. Rathod**

Hilliard Rotary Meeting, Hilliard, OH January 27, 2011

**Pediatric IR Radiology: Changing Lives with Precision and Innovation**

Olentangy Rotary Meeting, Powell, OH September 15, 2011

**EXHIBITS AND POSTERS:**

**Practical Models for Invasive Sonography**

Radiological Society of North America, Chicago, IL  
December 1-6, 1991

**Air Enema for Childhood Intussusception**

Radiological Society of North America, Chicago, IL  
1-6 December, 1991

**A Model for Interventional Breast Ultrasound**

Radiological Society of North America, Chicago, IL  
1-6 December, 1991

**Interventional Breast Ultrasound: Clinical Application**

Radiological Society of North America, Chicago, IL  
28 November-4 December, 1992

**A Model for Interventional Breast Ultrasound**

Association of University Radiologists, Cincinnati, OH  
19-22 May, 1993

**Phantom of the Breast: A Model for Invasive Breast Sonography**

American Institute of Ultrasound in Medicine, San Francisco, CA  
26-29 March, 1995

**Phantom of the Breast: A Model for Invasive Breast Sonography**

American Roentgen Ray Society, Washington, DC  
30 April - 5 May, 1995

**Phantom of the Breast: A Model for Invasive Breast Sonography**

Radiological Society of North America, Chicago, IL

26 November - 1 December, 1995

**Diagnostic and Interventional Ultrasound of the Pediatric Spine**

Coley BD, Koch BL, Shiels WE II, Bates DG, Hogan MJ, Murakami JW

American Institute of Ultrasound in Medicine, San Francisco, CA

2-5 April, 2000

**Successful Percutaneous Treatment of Simple and Plunging Ranulas**

Shiels WE2, Wiet RM1, Wiet GJ3, Tobin EJ1, Kang DR3

American Society for Pediatric Otolaryngology, Las Vegas, NV

5 June, 2005

**Self-Embedding Behavior: The Problem, the Challenge, and the Future**

Emily Lorenz, B.A., Jarrod Leffler Ph.D., Nicholas Lofthouse Ph.D., John Campo MD, William E. Shiels II, DO

American Psychological Association, Toronto, Ont., Canada

6-9 August, 2009

**EDUCATIONAL VIDEOTAPES/CD-ROM:**

Shiels WE II, Kirks DR:

The Air Enema for Diagnosis and Therapy of Intussusception.

Children's Hospital Medical Center, Cincinnati, OH - July 1990

Shiels WE II, Babcock DS:

Practical Models for Invasive Sonography Training.

Children's Hospital Medical Center, Cincinnati, OH - July 1990

Shiels WE II, Babcock DS:

Sonographically Guided Foreign Body Localization and Removal: A Training Model.

Children's Hospital Medical Center, Cincinnati, OH - July 1990

Georgian-Smith D, Shiels WE II:

A Model for Interventional Breast Ultrasound

University of Cincinnati College of Medicine, Cincinnati, OH- December 1991

Shiels WE II:

Intussusception

RSNA Today Video, Vol 7

Radiological Society of North America

Oak Brook, Illinois, December 1993

Georgian-Smith D, Shiels WE II:

Phantom of the Breast: A Model for Invasive Breast Sonography

Cincinnati, OH December 1994

Shiels WE II

Handling of The Acutely Ill and Injured Child

American Roentgen Ray Society, Pediatric Emergency Radiology Categorical Course CD-ROM

Washington, DC, April 1995

Shiels WE II:  
Case Based Pediatric Interventional Radiology  
Radiology Quiz  
OMEN/OMEN-TV  
Columbus, OH

Shiels WE II:  
Childhood Intussusception: Techniques of Diagnosis and Therapy, RSNA Video  
Today Journal of Imaging Science 1993: Vol. 7; No 4

#### **RESEARCH GRANTS:**

Shiels WE, Keller GL, Ryckman FR, Kirks DR. Colonic perforation in the juvenile porcine model. Funded through The Society for Pediatric Radiology Research and Educational Grant, April 1990 - May 1991.

O'Connor SC, Shiels WE, Shanley DS. Juvenile colonic perforation in the porcine model: Relative risk in the neonate. Funded through The Society for Pediatric Radiology Research and Educational Grant, May 1993-April 1995.

Shiels WE, Short RF, Sferra TA, Wiet GA, Schofield KM. Development of a Lymphangioma Animal Model for Evaluation of Image-Guided Sclerotherapy Regimens. Funded through The Society for Pediatric Radiology Research and Education Foundation Grant. August 2003

Shiels WE. Clinical Utility and Pitfalls of Ultrasound Guided Foreign Body Removal in War Fighters Funded through the DoD/U.S. Army Medical Research and Material Command September 2008

#### **EDUCATIONAL GRANTS:**

Georgian-Smith D, Shiels WE II:  
Phantom of the Breast: A Model for Invasive Breast Sonography  
December 1994

#### **WORKS IN PROGRESS:**

O'Connor SC, Shiels WE, Shanley DS. Juvenile colonic perforation in the porcine model: Relative risk in the neonate

(revised 09/15/11)

**APPENDIX 2**  
**Foreign Body Removal Record Form**

Date: \_\_\_\_\_

**Surgical procedure**

**Removal technique:** (    ) **Surgical** - traditional surgical removal following skin marking of foreign body location

Cadaver thigh: (    ) #1  
FB location (    ) #1 (    ) #2 (    ) #3

Cadaver thigh: (    ) #2  
FB location: (    ) #1 (    ) #2 (    ) #3

Cadaver thigh: (    ) #3  
FB location: (    ) #1 (    ) #2 (    ) #3

**Surgical procedure**

**Removal technique:** (    ) **Wire localization** – surgical removal of the foreign bodies following ultrasound guided placement of localization wires at the site of each foreign body.

Cadaver thigh: (    ) #4  
FB location: (    ) #1 (    ) #2 (    ) #3

Cadaver thigh: (    ) #5  
FB location: (    ) #1 (    ) #2 (    ) #3

Cadaver thigh: (    ) #6  
FB location: (    ) #1 (    ) #2 (    ) #3

**Radiological procedure**

**Removal technique:** (    ) **Percutaneous** - interventional radiological ultrasound guided foreign body removal

Cadaver thigh: (    ) #7  
FB location: (    ) #1 (    ) #2 (    ) #3

Cadaver thigh: (    ) #8  
FB location: (    ) #1 (    ) #2 (    ) #3

Cadaver thigh: (    ) #9  
FB location: (    ) #1 (    ) #2 (    ) #3

FB type:            wood

Incision size (self report): \_\_\_\_\_

Incision size (video confirmation): \_\_\_\_\_

Time of procedure (self report): \_\_\_\_\_

Time of procedure (video confirmation): \_\_\_\_\_

Wound closure/number of sutures (self report): \_\_\_\_\_

Wound closure/number of sutures (video confirmation): \_\_\_\_\_

Overall removal success: (self report): \_\_\_\_\_

Overall removal success: (video confirmation): \_\_\_\_\_

Procedural differences as noted by study coordinator from documentation during procedure and review of video documentation: Notes: (see back of page)



# APPENDIX 3

	Thigh #	Cadaver Specimen Information	Size of wooden FB (part of a toothpick) to be removed in cm	Incision size in mm	Overall removal success	Time determined that FB could not be located	(Self report & study coordinator observe) Time of procedure to remove FB w/o closure or stopped looking for FB	(Self report & study coordinator observe) Time of procedure to remove FB (w/ sutures) skin to skin time	# of sutures	Suture style
<b>Surgical Procedure -</b> traditional surgical removal following <b>skin marking</b> of foreign body location	S1	#5862 Female, 87 years old Cause of death: Alzheimer's	1	44	No	11	11	15	8	continuous
<b>Surgical Procedure -</b> traditional surgical removal following <b>skin marking</b> of foreign body location	S2	#5862 Female, 87 years old Cause of death: Alzheimer's	1	41	No	10	10	11	8	continuous
<b>Surgical Procedure -</b> traditional surgical removal following <b>skin marking</b> of foreign body location	S3	#5862 Female, 87 years old Cause of death: Alzheimer's	1	58	Yes	1	4	9	9	continuous

	Thigh #	Cadaver Specimen Information					Size of wooden FB (part of a toothpick) to be removed in mm	Incision size in mm	Overall removal success	Time determined that FB could not be located	(Self report & study coordinator observe) Time of procedure to remove FB w/o closure or stopped looking for FB	(Self report & study coordinator observe) Time of procedure to remove FB (w/ sutures) skin to skin time	# of sutures	Suture style
<b>Surgical Procedure</b> - traditional surgical removal following <b>skin marking</b> of foreign body location	S4		1	54	Yes			5		10	6	interrupted		
<b>Surgical Procedure</b> - traditional surgical removal following <b>skin marking</b> of foreign body location	S5		1	43	Yes			2		4	5	interrupted		
<b>Surgical Procedure</b> - traditional surgical removal following <b>skin marking</b> of foreign body location	S6		1	30	Yes			2		5	4	interrupted		

	Thigh #	Cadaver Specimen Information				Size of wooden FB (part of a toothpick) to be removed in mm	Incision size in mm	Overall removal success	Time determined that FB could not be located	(Self report & study coordinator observe) Time of procedure to remove FB w/o closure or stopped looking for FB	(Self report & study coordinator observe) Time of procedure to remove FB (w/ sutures) skin to skin time	# of sutures	Suture style
<b>Surgical Procedure</b> - traditional surgical removal following <b>skin marking</b> of foreign body location	S7		1	39	Yes			2		7	5	interrupted	
<b>Surgical Procedure</b> - traditional surgical removal following <b>skin marking</b> of foreign body location	S8		1	58	Yes			5		11	6	interrupted	
<b>Surgical Procedure</b> - traditional surgical removal following <b>skin marking</b> of foreign body location	S9		1	45	Yes			4		8	5	interrupted	

	Thigh #	Cadaver Specimen Information	Size of wooden FB (part of a toothpick) to be removed in cm	Incision size in mm	Overall removal success	Time determined that FB could not be located	(Self report & study coordinator observe) Time of procedure to remove FB w/o closure or stopped looking for FB	(Self report & study coordinator observe) Time of procedure to remove FB (w/ sutures) skin to skin time	# of sutures	Suture style
<b>Surgical Procedure - Wire</b> <b>localization -</b> surgical removal of the foreign bodies following ultrasound guided placement of localization wires at the site of each foreign body	W1	#5849 right leg Male 91 years old Cause of death: Dementia & Heart Disease	1	30	Yes		3	8	4	interrupted
<b>Surgical Procedure - Wire</b> <b>localization -</b> surgical removal of the foreign bodies following ultrasound guided placement of localization wires at the site of each foreign body	W2	#5849 right leg Male 91 years old Cause of death: Dementia & Heart Disease	1	25	Yes		1	4	3	interrupted
<b>Surgical Procedure - Wire</b> <b>localization -</b> surgical removal of the foreign bodies following ultrasound guided placement of localization wires at the site of each foreign body	W3	#5849 right leg Male 91 years old Cause of death: Dementia & Heart Disease	1	24	Yes		3	6	3	interrupted

	Thigh #	Cadaver Specimen Information	Size of wooden FB (part of a toothpick) to be removed in cm	Incision size in mm	Overall removal success	Time determined that FB could not be located	(Self report & study coordinator observe) Time of procedure to remove FB w/o closure or stopped looking for FB	(Self report & study coordinator observe) Time of procedure to remove FB (w/ sutures) skin to skin time	# of sutures	Suture style
<b>Surgical Procedure - Wire</b> <b>localization -</b> surgical removal of the foreign bodies following ultrasound guided placement of localization wires at the site of each foreign body	W4	#5849 left leg Male 91 years old Cause of death: Dementia & Heart Disease	1	30	Yes		4	7	5	interrupted
<b>Surgical Procedure - Wire</b> <b>localization -</b> surgical removal of the foreign bodies following ultrasound guided placement of localization wires at the site of each foreign body	W5	#5849 left leg Male 91 years old Cause of death: Dementia & Heart Disease	1	39	No	8	8	12	6	interrupted
<b>Surgical Procedure - Wire</b> <b>localization -</b> surgical removal of the foreign bodies following ultrasound guided placement of localization wires at the site of each foreign body	W6	#5849 left leg Male 91 years old Cause of death: Dementia & Heart Disease	1	30	Yes		6	10	4	interrupted

	Thigh #	Cadaver Specimen Information	Size of wooden FB (part of a toothpick) to be removed in cm	Incision size in mm	Overall removal success	Time determined that FB could not be located	(Self report & study coordinator observe) Time of procedure to remove FB w/o closure or stopped looking for FB	(Self report & study coordinator observe) Time of procedure to remove FB (w/ sutures) skin to skin time	# of sutures	Suture style
<b>Surgical Procedure - Wire localization -</b> surgical removal of the foreign bodies following ultrasound guided placement of localization wires at the site of each foreign body	W7	#5348 Male 81 years old Cause of death: Liver Disease	1	36	Yes	2	5	5	interrupted	
<b>Surgical Procedure - Wire localization -</b> surgical removal of the foreign bodies following ultrasound guided placement of localization wires at the site of each foreign body	W8	#5348 Male 81 years old Cause of death: Liver Disease	1	37	Yes	1	6	6	interrupted	
<b>Surgical Procedure - Wire localization -</b> surgical removal of the foreign bodies following ultrasound guided placement of localization wires at the site of each foreign body	W9	#5348 Male 81 years old Cause of death: Liver Disease	1	38	Yes	2	6	6	interrupted	

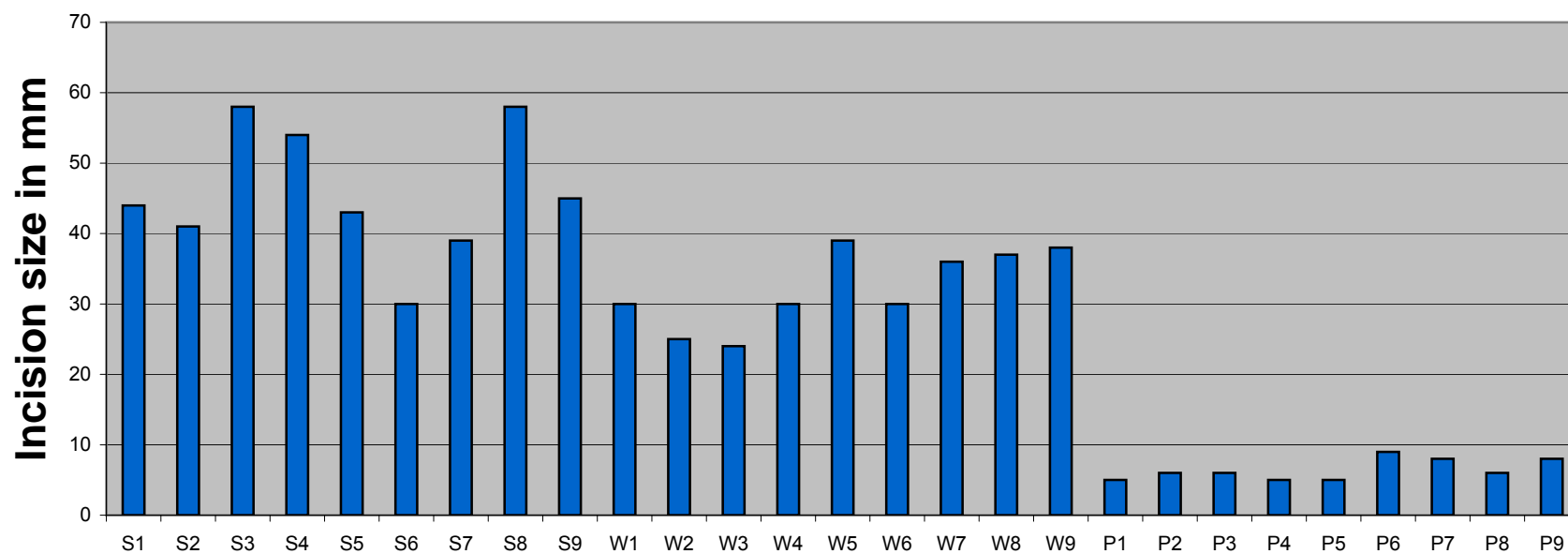
	Thigh #	Cadaver Specimen Information	Size of wooden FB (part of a toothpick) to be removed in mm	Incision size in mm	Overall removal success	Time determined that FB could not be located	(Self report & study coordinator observe) Time of procedure to remove FB w/o closure or stopped looking for FB	(Self report & study coordinator observe) Time of procedure to remove FB (w/ sutures) skin to skin time	# of sutures	Suture style
<b>Radiological Procedure</b> Removal Technique - <b>Percutaneous</b> - interventional radiological ultrasound guided foreign body removal	P1	#5862 Female Right leg 87 years old Cause of death: Alzheimer's	1	5	Yes	10	10	0	N/A	
<b>Radiological Procedure</b> Removal Technique - <b>Percutaneous</b> - interventional radiological ultrasound guided foreign body removal	P2	#5862 Female Right leg 87 years old Cause of death: Alzheimer's	1	6	Yes	10	10	0	N/A	
<b>Radiological Procedure</b> Removal Technique - <b>Percutaneous</b> - interventional radiological ultrasound guided foreign body removal	P3	#5862 Female Right leg 87 years old Cause of death: Alzheimer's	1	6	Yes	4	4	0	N/A	

	Thigh #	Cadaver Specimen Information	Size of wooden FB (part of a toothpick) to be removed in cm	Incision size in mm	Overall removal success	Time determined that FB could not be located	(Self report & study coordinator observe) Time of procedure to remove FB w/o closure or stopped looking for FB	(Self report & study coordinator observe) Time of procedure to remove FB (w/ sutures) skin to skin time	# of sutures	Suture style
<b>Radiological Procedure</b> Removal Technique - <b>Percutaneous</b> - interventional radiological ultrasound guided foreign body removal	P4	#5861 Female Right leg 68 years old Cause of death: Huntington's Chorea	1	5	Yes		23	23	0	N/A
<b>Radiological Procedure</b> Removal Technique - <b>Percutaneous</b> - interventional radiological ultrasound guided foreign body removal	P5	#5861 Female Right leg 68 years old Cause of death: Huntington's Chorea	1	5	Yes		26	26	0	N/A
<b>Radiological Procedure</b> Removal Technique - <b>Percutaneous</b> - interventional radiological ultrasound guided foreign body removal	P6	#5861 Female Right leg 68 years old Cause of death: Huntington's Chorea	1	9	Yes		17	17	0	N/A



	Thigh #	Cadaver Specimen Information	Size of wooden FB (part of a toothpick) to be removed in cm	Incision size in mm	Overall removal success	Time determined that FB could not be located	(Self report & study coordinator observe) Time of procedure to remove FB w/o closure or stopped looking for FB	(Self report & study coordinator observe) Time of procedure to remove FB (w/ sutures) skin to skin time	# of sutures	Suture style
<b>Radiological Procedure</b> Removal Technique - <b>Percutaneous</b> - interventional radiological ultrasound guided foreign body removal	P7	#5861 Female Left leg 68 years old Cause of death: Huntington's Chorea	1	8	Yes	4	4	0	N/A	
<b>Radiological Procedure</b> Removal Technique - <b>Percutaneous</b> - interventional radiological ultrasound guided foreign body removal	P8	#5861 Female Left leg 68 years old Cause of death: Huntington's Chorea	1	6	Yes	13	13	0	N/A	
<b>Radiological Procedure</b> Removal Technique - <b>Percutaneous</b> - interventional radiological ultrasound guided foreign body removal	P9	#5861 Female Left leg 68 years old Cause of death: Huntington's Chorea	1	8	Yes	3	3	0	N/A	

## Cadaver Cohort Comparison Study



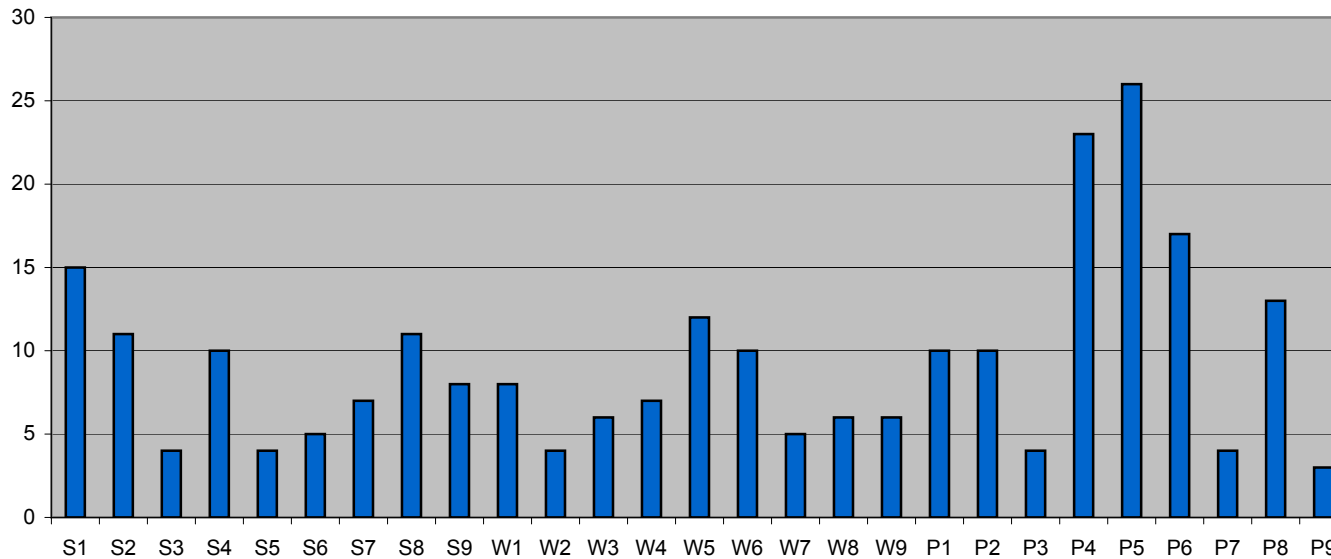
**S=Traditional Surgical**

**W=Surgical with Wire Localization**

**P=Radiological/Percutaneous US**

## Cadaver Cohort Comparison Study

**Time in Minutes to Remove  
Foreign Body**

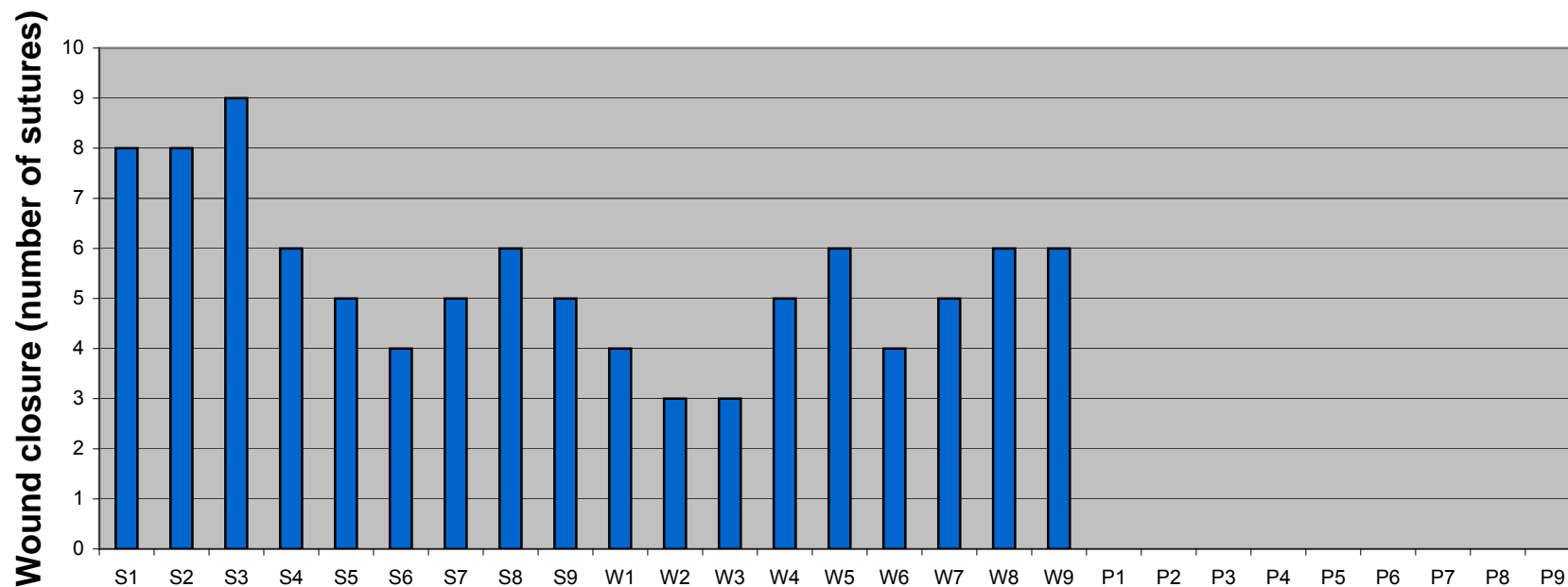


**S = Traditional Surgical Procedure**

**S=Surgical Procedure with Wire Localization**

**P = Radiological Procedure - Percutaneous US**

### Cadaver Cohort Comparison Study



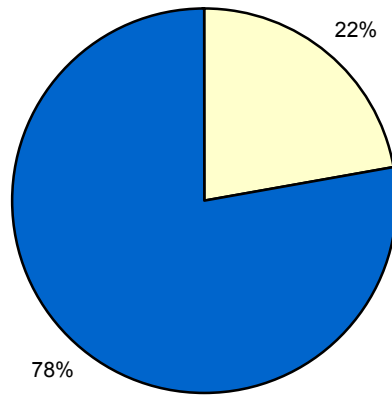
**S=Traditional Surgical**

**W=Surgical with wire localization**

**P=Radiological/Percutaneous US**

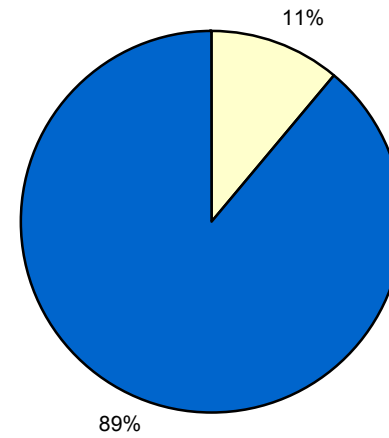
# Cadaver Cohort Comparison Study

Traditional Surgical



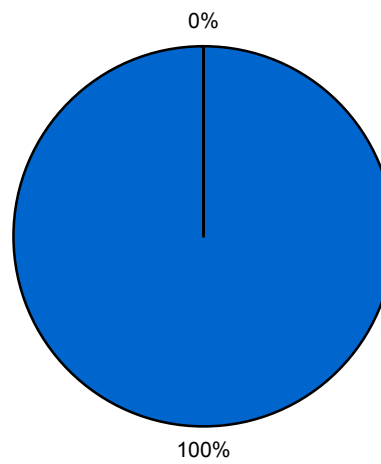
■ Failure Rate ■ Success Rate

Surgical with Wire Localization



■ Failure Rate ■ Success Rate

Radiological/Percutaneous US



■ Failure Rate ■ Success Rate